
The future of interactive entertainment
UK edition February 1995 £3.50 ¥2100 $ten
EDGE
Sony ■ Sega ■ Nintendo ■ 3DO ■ PC ■ Amiga ■ Atari ■ SNK ■ Arcade ■ NEC ■ CD-i
9 771350 159014 02
エッジ ミーツ ジ
ウルトラメン
Nintendo64: from blueprint to reality
Issue twenty-nine
29
Voted
Magazine
of the year
Industry awards
For years, rumour and conjecture have surrounded Nintendo and its 64bit gamebox but only now has it committed itself to a launch. Edge reports from Tokyo and interrogates the masterminds behind the machine that could have Sony and Sega cowering in its wake. A new benchmark is set
future


EDGE



Ultra 64: the panacea for next generation apathy?

Videogames are enjoying a renaissance similar to that appreciated by the arrival of the 16bit consoles. They have a renewed significance and importance borne of marketing companies' efforts and consumers' desires. Within the cultural currency of our society they are, once again, a desirable commodity.

But on the horizon lies a portent that could be overlooked in the ensuing furore. Already, a glut of poor-quality software is stockpiling for consoles only a few months old. Admittedly, these machines have bettered their rivals in providing a range of must-have games, but after their launch bait has been consumed, a diet of under-designed fodder could erode consumer faith and the market's foundations.

No-one is more aware of this than Nintendo chairman, Hiroshi Yamauchi. Recently addressing delegates at the Shoshinkai show in Tokyo, he made a bitter and vehement attack on the business that had made him his fortune, assigning blame for an abortive 16bit market with third parties content to produce hackneyed, lifeless creations. The solution? Place the duty of developing software in the hands of a talented few, as has been done for the first batch of U64 titles.

Of course, there is a risk with such an idealistic goal: developers aren't afforded the creative scope to cultivate games that break the mould, resulting in software designed to gratify the lowest common denominator of consumer taste. In fact, if this was any other company but Nintendo the threat of an insipid, frivolous software line-up would be a prospect that couldn't be ignored. For those planning to subscribe to its vision, the company's unrivalled perception of what makes a great videogame will be a comfort.

The **future** is almost here...





ABC (Audit Bureau of Circulation)
Printed in the UK

Contacts

Editorial

Future Publishing
30 Monmouth Street
Bath BA1 2BW

Telephone 01225 442244
Fax 01225 338236
Email edge@futurenet.co.uk

Subscriptions

Future Publishing Ltd
FREEPOST BS4900, Somerton
Somerset TA11 7BR
Tel Customer services:
01225 822510
Customer order line:
01225 822511
Fax 01458 274378
The annual subscription rate for one year is:
UK £36 (£32 direct debit), post free; Europe £63; rest of world £92
Overseas distribution:
Future Publishing 1225 442244

People on Edge

Jason Brookes editor
Jez Bridgeman art editor
Nick Harper production editor
Craig Brooks art assistant
Keith Stuart writer

Nicolas di Costanzo Tokyo bureau

Nathan Berkley advertising manager (0171 447 3309)
Graham Clarke business development
Dominique Fisher sales executive
Advertising fax 01225 480325
Colette Varga production coordinator
Richard Gingell production manager
Production fax 01225 423118
Cathy McKinnon ad design
Janet Anderson production controller
Judith Green group prod. manager
Jon Moore pre-press services coordinator
Simon Windsor, Chris Stocker colour scanning and manipulation
Mark Gover, Jason Titley, Oliver Gibbs pre-press services
Dave Roberts assistant publisher
Chris Power publisher
Greg Ingham managing director
Nick Alexander chairman

Colour reproduction

Colourworks Repro, Bristol
Phoenix Repro, Bath

Print

Cradley Print, Warley, West Midlands
Edge is printed on Royal Press 90 gsm

Production of Edge

Hardware: Power Macintosh, PowerBook, IIsi and Classic by Apple
Software: *QuarkXPress*, Adobe *Photoshop*, Aldus *FreeHand*, Pixar *Typestry* and *Nisus*
Typography: (Adobe®)
ITC Franklin Gothic/**Heavy**
Bell Gothic Light/**Black**
Gill Sans/**Bold**
Fifth colour: Pantone® 8200 & 876

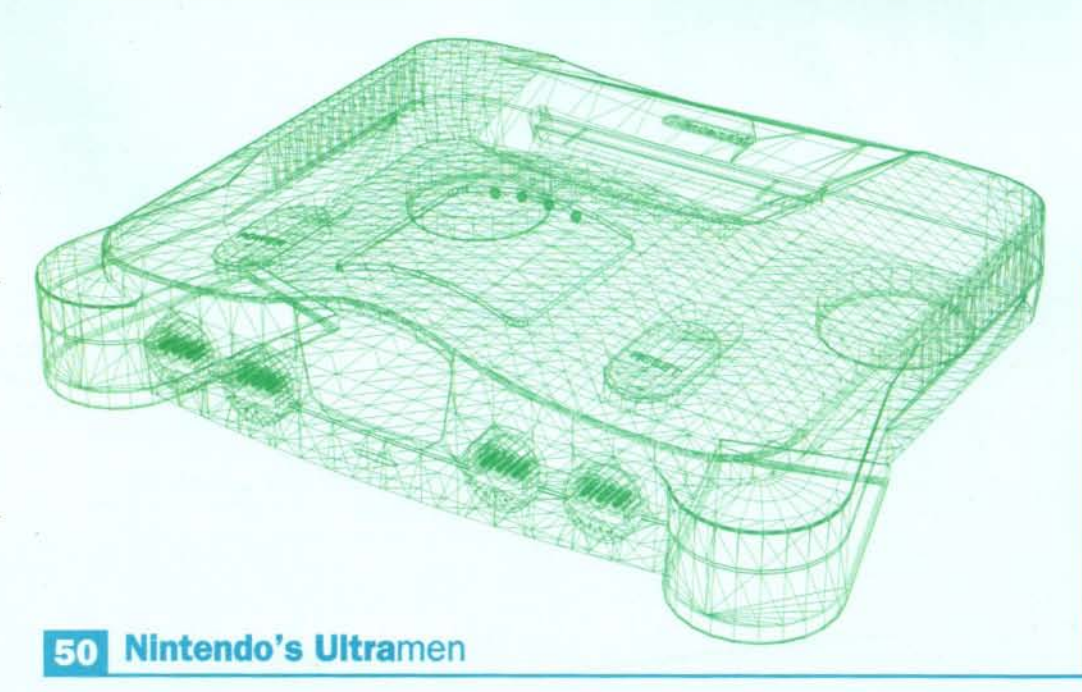
Cover

Cover image: '**Edge** meets the Ultramen'. Wireframe by Roger Harris









insideview

News 6



Photography: Jude Edginton





Ultra 64 launch (left), GLINT-labs 3D chip (top right), IAAPA VR show (above)

Prescreen 28



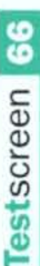


Super Mario 64 (left) and ***Time Gate***

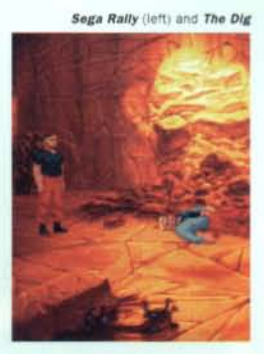
Sega Rally (left) and ***The Dig***

Testscreen 66









104 Chris **Crawford**



Photography: Mark Koehler

Shoshinkai – **Edge** jets off to Japan to see the unveiling of Nintendo's **Ultra 64/page 6** • **nVidia** accomplishes **3D** ambition on PC/**page 10** • **SNK** release details of a **dual-speed** Neo Geo CD console/**page 10** • The **latest** VR **developments** are shown at IAAPA/**page 12**



The latest **news** from the world of interactive entertainment

Nintendo64: rumour turns into reality

The Nintendo 64 finally makes its debut receiving a warm reception

Located at the Makuhari Messe exhibition centre (top left), Nintendo's 64bit debut was an event with immense standing. Developers, analysts, distributors and journalists travelled from all over the world to witness the unveiling. Nintendo's N64 stand (above, left) occupied just one corner of the huge hall





Getting to grips with the N64's controller (above, left) was the only way to appreciate just how well-designed it is

And when, exactly?

The Nintendo64 will be released in Japan on April 21, 1996 and will retail at ¥25,000 (£160), with no software bundled with it. Nintendo claims that the US and UK launches will occur 'at the end of April' but apart from an over-zealous press release from UK distributors THE claiming a UK date of April 29th (which allegedly caused the 'suspension' of THE's MD Alan Taylor), nothing else has been announced. In the US and the UK the console will most likely be bundled with one game (any guesses?) for the respective prices of $200-250 and £200-250.

On the morning of Friday 24th November, delegates entering Nintendo's Shoshinkai exhibition were sure of only three things: Mario was the most significant game character of the 1980s, and yet remains Nintendo's most-treasured and valuable intellectual property; Shigeru Miyamoto is, without question, the world's finest games creator; and Nintendo is the most secretive company in the business of making videogames. Eight hours later, leaving the show, not many people were considerably wiser.

Nintendo's refusal to let any N64 information slip over and above the bare minimum came as no surprise. 'Second party' game developers were still shackled by non-disclosure agreements and, for many, the only comfort came in seeing some of the world's finest and most high-profile game developers themselves witnessing the completed machine in action for the very first time.

But the most galling aspect of the show was the revelation that there were, in fact, only one and a half games available for hands-on testing (*Kirby Bowl 64* doesn't come close to *Super Mario 64*). Hiroshi Yamauchi's decision to pull all ten playable demos from the line-up just days before the show came as a big shock to developers who had been working on demos for weeks. One developer told **Edge** 'It's a shame, because a few seconds of video tape just doesn't do anything justice. Besides, most of this stuff is weeks old.'

Despite this disappointment, some games managed to shine, even in their rather limited presence as non-playable video demos. Paradigm Simulation's *Pilotwings 64* was one game that

Who is it?

This man attempted to document the lives of America's 'dissaffected youth' (that's 'useless layabouts' in proper English) with his 1991 book Generation X. His new novel turns on the computer industry...

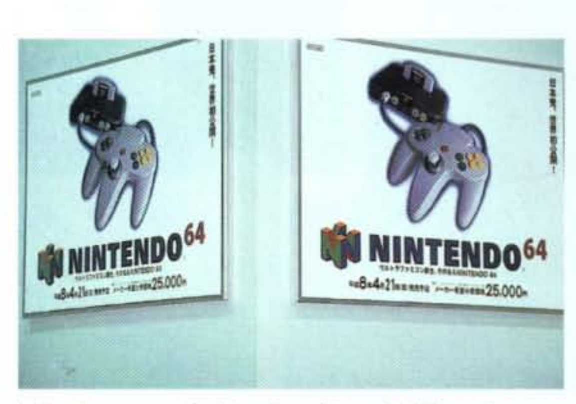




By far the most significant event at Shoshinkai was chairman Hiroshi Yamauchi's address to a sea of journalists and media representatives

looked impressive and is rumoured to look even better than the brief clip suggested. Reassuringly though, most of the other games on tape looked as though they were harking back to the golden days of good old-fashioned playability, while still exploiting the N64's true 3D abilities. One welcome surprise was that there were no beat 'em ups and no racing games on show.

Continued next page



The Japanese retail price adorned the main N64 stand (above). Finished consoles sat in protective cases (right)



Williams' *Cruisin' USA* was pulled from the line-up by Yamauchi for being too American while *Killer Instinct*'s absence remained something of a mystery.

Fortunately, the quality of *Super Mario 64* (see page 38) in itself was enough to entertain those unimpressed with the video demonstration of the other titles, keeping delegates entranced with its virtually flawless visuals and unusual controls.

So why were there so few playable demos at Shoshinkai? Two theories exist: first, that Nintendo wanted to use the event to showcase their beloved flagship game *Super Mario 64*, and second, that it was done in order to protect the reputation of what are essentially very incomplete titles.

Whatever the case, It was perhaps Hiroshi Yamauchi's candid, and at times vitriolic, speech on the first afternoon of the show that gave the most telling insight into Nintendo's corporate philosophies. He began with what amounted to an apology for the failure of the Virtual Boy and promised that Nintendo would 'start afresh' in 1996 with a batch of new titles to fully expolit the V-Boy's hardware. From here, he turned to the N64, which he potrayed as a saviour that will 'rescue the market that is being threatened'. He promised Nintendo had no intention of attempting to dominate the market, 'rather, we want to change the market so that the users won't leave us. We want to assure the future'.

Moving on to more general matters, Yamauchi discussed forthcoming N64 games and promised, amongst other things, that, 'people will not be able to see the uniqueness of *Mario Kart* until it is at least 80% complete'.

Yamauchi also briefly mentioned the N64's infamous 'bulky' device, which will provide large storage capacity, high-speed access and the ability to write, as well as read, data. This peripheral would allow totally new developments in game design, he asserted. *Dragon Quest 7* and *Zelda 64*, released in late 1996, will be first to employ the device.

In the end, many attendees were dispirited by the lack of playable demos on offer. There were even some technical concerns from developers not on the exalted 'Dream Team'. However, most people were impressed with the originality of the titles that will make up the first generation of N64 software – for once, arcade conversions did not dominate the line-up and Nintendo's commitment to broadening the horizons of game play – with the bulky drive and duo analog/digital joystick – was also commended. Nintendo themselves are in no doubt about how important the N64 will prove to be. While discussing *Mario 64*, Yamauchi stated: 'I might be bragging, but when this game is complete, it may be the best videogame in history.'





A rare moment (right) as Edge cajoles Miyamoto-san to play his own game for the camera. Some needed prising off the controller (left)

it is...

Douglas Coupland, whose new work, 'Microserfs', is a study of assorted computer nerds (useless layabouts again) who write code for Microsoft, but find it unsatisfying. What did they expect?

Tech specs

Officially released by Nintendo at the show were these less than conclusive specifications. Note the absence of information about the system's sound...

CPU: Mips 64 bit RISC (customized R4000 series) @ 93.75 Mhz
MEMORY: Rambus DRAM 36Megabits (or 4.5 Megabytes) With a maximum transfer of speed of 4,500 Mbit/sec
CO-PROCESSOR:Reality Co-Processor (RCP) incorporating built-in SP (Sound and graphics processor) and DP (pixel drawing processor) running at 62.5 Mhz
RESOLUTION: 256x224 – 640x480 dots with flicker free interface mode support
COLOR: 32 bit RGBA pixel color frame buffer support 21 color video output





The public attended the show on the second and third days, queues forming for the 100 N64 machines (above). Note the sign discouraging DIY screenshots (right)



It wasn't all 64bit fever. Both the Super Famicom (*Super Mario RPG*, right) and the Virtual Boy (above) took floor space



NOA's Howard Lincoln and Peter Main (centre and right in above picture) with Rare's Joel Hochberg. Enix's *Dragon Quest* babes (left) were typical of the event





On the second and third days people could vote for their most wanted N64 games (right). For one, the excitement proved too much (left)

Bad Press

This month Edge (eternal stalwart of the UK press) has three more woeful tales berating videogames – Ocean goes to hell, games are considered corrective treatment, and Sega employs convicts

You'll all burn for this

Ocean, that fine and upstanding member of the UK software community, has received a stiff spanking from consumer watchdog, the Advertiser Standards Authority. Apparently, the cheeky Mancunian lads' *Doom* campaign, featuring the immortal slogan 'Go to hell: you deserve it', caused legions of ordinarily mild-mannered church-goers to throw on their hessian robes and mill about demanding the offending posters be cast down into the pit of perdition. Which, with the orders of the ASA, they duly were. Just a few days after the poster campaign's end.

Source: Manchester Evening News, 04/12/95

Seemed like a good idea at the time

Controversy rages over the border in Scotland where £500,000 of tax-payer's money has been injected into Cyberzone 15, a scheme to get the youth off the streets of the troubled Easterhouse area in Glasgow. Armed with four state-of-the-art Mega Drives and a fistful of PCs, youth workers hope to help angry teenage boys graduate from 'beat-em-up' games to problem solving types and then into learning about computers, thereby 'improving their confidence and self-esteem'. Which seems a little bit like giving a hippy a tab of acid in the hope that he'll develop an interest in chemistry. Local Tories, needless to say, are enjoying a group coronary arrest.

Source: Glasgow Evening Times, 28/11/95

Virtua rehabilitation

There are red cheeks all round as the curiously-named Ted Butt, governor of Latchmere House prison, claims that he was 'conned' into letting one of his convicts appear in a radio ad for Sega's Saturn conversion of *Virtua Cop*. A mightily sore Butt maintains that Sega led him to believe that Steven Hickson, currently serving eight years for drugs offences, would be merely appearing in a 'programme' not an advertisement plugging 'a game depicting violence'. Butt's allegations have yet to be answered by Sega, though one company insider is reported to have said: 'It's all bloody good publicity'. For whom exactly only time will tell.

If, while perusing your 'favourite' rag, you happen to discover a news story or article bad-mouthing the videogames industry, send it to the usual **Edge** address and it may qualify for inclusion in Bad Press. Free subscriptions will be given in return for published stories

nVidia delivers fast 3D for PC

The PC's 3D games market gets ready to rival the consoles'

*n*VIDIA



The Edge card is the first of many 3D PC graphics boards, offering high resolution displays with no slow down

The first in a new wave of 3D accelerated PC graphics cards is now available in the shops. Rivalling the graphical power of a 32bit console, the £250 Diamond Edge 3D Multimedia Accelerator has been designed with the aim of helping the PC stay in the custom graphics race. More importantly, it heralds the start of a new battle to control what will surely become the PC's most lucrative new market over the next few years: that of the custom 3D graphics card.

First impressions of the Edge (no relation) are remarkably encouraging. A customised version of Sega's *Virtua Fighter*, which ships with the card, runs fully-textured at 30 fps in 16bit colour without any of the PC's usual graphical infidelities. Diamond Multimedia, the card's San Jose-based manufacturer, claims this frame rate and colour depth may be maintained at a super-crisp 1024x768 resolution (twice what any console can attain) while the Edge's other effects are added. These include MIP mapping, anti-aliasing, alpha effects such as fog, smoke and transparency plus the card's trump – its quadratic texture-mapping, which uses a different method to draw and plot out the edges of polygons.

The nVidia chip automatically smooths and shades jagged edges to produce a greatly improved effect, a technology certainly evident from the rendered characters in *VF Remix*.

As a fully-functioning graphics card, the Edge is optimised for the PC's future, ie *Windows '95* – DOS performance is poor and there is no →





Neo Geo CDZ

SNK have just released a double-speed version of their CD-driven console in Japan, to combat criticism over slow loading times of CD-based games.

Apart from the double-speed drive, the unit has the same specs as the original Neo Geo CD. However, the machine has shrunk and is now similar in size to the PlayStation. The price will probably parallel Sony's machine, too





Sega's deal with nVidia means *Panzer Dragoon* (top right) and *Virtua Fighter Remix* (PC version shown, above) are being converted to PCs with the Edge 3D card. The card allows Saturn games to run in hi-res on the PC

Data stream

Estimated cost of looking after NASA's 150 retired space chimpanzees in the manner to which they have become accustomed: **$100m**
Number of expletives in Martin Scorsese's new film, Casino: **553**
Copies of *VF2* sold in its first weekend on release in Japan: **500,000**
Acclaim's 1995 net prophets (original figure): **$55.5 million**
Acclaim's 1995 net profits (revised figure): **$45 million**
Number of computers stolen everyday in the US: **2,000**
Arena Magazine's woman of 1995: **Elizabeth Hurley**
According to Maxim magazine, number of accidents caused annually in Britain by stationary and writing equipment: **4,000**
Amount of tobacco duty being paid to the chancellor of the exchequer every minute: **£17,000**
US sales of general software applications in the third quarter of 1995 (figures: Software Publishers Association): **$2.24bn**
U.S. sales of *Windows* applications: **$1.86bn**
U.S. sales of Macintosh applications: **$242.5m**
According to a report by AST – percentage of parents who are worried that their children will access pornography over the Internet: **60%**
Percentage who hope that a home PC will encourage children to watch less TV: **40%**
Number of employees fired by IBM during the past decade: **186,000**
Average number of man hours spent working overtime by the **Edge** team: **312 per issue**
Amount spent by electrical retailers on in-store security each year: **£25m**



The Edge's quadratic texture-mapping curves joins – these two balls use an equal number of polys

→ Soundblaster chip, factors that can be ignored when running games under Microsoft's OS. The card also has video support matching MPEG quality.

Not to be underestimated is Sega's contribution to the card's launch. For the first time on the PC a perfectly playable coin-op has been available with a comfortable joypad – the card comes with a pair of Saturn controller ports on the reverse and a slightly altered joypad which is just as comfortable and cheap-looking as the console original. The card carries more than just a 3D chip, however. Due to design legacies, conventional PC joypads can occupy up to 10% of the already straining CPU during use. The Edge card, however, takes care of all data transfers without incurring any performance loss whatsoever, particularly important considering leading games like *Descent 2*, which would benefit from a decent joypad, are due to appear on the card.

Sega's involvement extends indefinitely, with a guarantee of porting many future Saturn titles to the nVidia chip, including *Virtua Fighter 2* and *Panzer Dragoon*. As well as propagating the increasingly widespread view that Sega will shift its emphasis from hardware to software, the move is logical from a technology standpoint because of similarities between the nVidia's and Saturn's polygon generation silicon – both machines use quadratic calculations.

This similarity enables ports to be accomplished faster and more easily than would be possible if a conversion to triangle geometry were required. In contrast, the PlayStation, M2, Real3D (**E**25), and 3DLabs' GLINT (**E**15) chip all use triangles as the basis for their calculations. And so does Microsoft's *DirectX* library of 3D graphics routines that will surely become the PC games development standard.

This library is based to a large degree on Reality Lab, the 3D technology acquired by Microsoft from Rendermorphics earlier this year, but nVidia's Dennis Johnstone claims that the underlying differences are unimportant. 'Programmers and the end-user don't care about how the technology operates, they just want to see the results. We know that architecturally our card provides the fastest frame rate at the lowest cost.' This belief is leading nVidia into the quest to ship the card with new PCs. 'We're talking to all the major players in the PC market to try and achieve this,' says Johnstone. 'That's obviously the way forward and we'll be doing our best to get in there early.'





The nVidia chip works with curves, not triangles, enabling these balloons to be twisted with no visible edges

This move may be the key to any success nVidia achieves. Currently, every graphics card manufacturer in the world is working on 3D accelerator technology and when their solutions hit the market, life will become noticeably tougher for nVidia. However, the GLINT-based 3D Blaster board is still suffering from delays and it's unlikely another 3D board will arrive with a killer app in the next few months. This head start may well provide the window that nVidia requires before the larger companies start fighting. **E**

What is it?

This games system, premiered at the summer Consumer Electronics Show of 1982, bucked the trend for pixel graphics and instead went for vector line graphics – as seen in *Asteroids*, *Tempest* and *Battle Zone*



Creative labs' GLINT-based 3D card is still suffering from delays

VR heavyweights parade at IAAPA

New Orleans saw the VR systems reaching fruition out of the home

it is...

The Vectrex, released by General Consumer Electronics and given a $199 price tag. It died around the year of 1984: a victim of the rise of the home computer. (for more info contact: ftp://ftp.csus.edu/pub/vectrex/FAQ)

Net contest

Enix, developers of the incredibly successful *Dragon Quest* series in Japan, has announced the Internet Entertainment Contest. Offering a grand prize of $200,000, Enix are hoping to entice talented new games developers to join their folds.

Anyone who has an original game in production can submit their ideas to Enix before October 31, 1996. Ads giving contest details will appear in future editions of Edge and sister magazine, .net.





Sega and Namco made an appearance with *Manx TT* (top) and Rave Racer (above)



VR motion pods, where the player is encased in a capsule, look big for 96

The 77th International Attractions and Amusement Park Association (IAAPA) exhibition took centre stage in New Orleans during November. The key show in the VR entertainment calendar, IAAPA housed the largest display of amuement machines ever gathered together in the world.

Virtuality Entertainment, the largest VR company and the market leader in head mounted displays (HMDs) had a booth at the show with three new games on display. The first was a license from Time Warner Interactive (formally Atari Games) with a re-working of their

1980 success, *Missile Command*. Virtuality, in their strive for new VR game content, had developed the game into a first-person-perspective product with the player stopping incoming ICBM's in an attempt to protect his allotted cities.

The second game on display was *Ghost Train*. Similar in principle to *Rail Chase* by Sega, the player has to shoot on-coming ghouls, spooks and a number of winged enemies. The end version is unlikely to be identical to the one on display, however, since Virtuality is constantly re-defining the new SD unit for the *Ghost Train* game, which should included a vibrating seat, (nicknamed the pile-driver in the amusement industry).

The last game, *Total Recoil* was voted Virtual Reality Best Exhibit by the IAAPA committee and demonstrated the reason why Virtuality leads the HMD entertainment market. The result of a



The 77th IAAPA show, in New Orleans, is the largest exhibition in the world of theme park and amusement rides

license with the sporting gun manufacturer Winchester, the game utilises a hand-held shotgun to shoot obstacles in a fairground. Playing in the games' favour are the built-in recoil device to add realism to the gun and the use of a higher quality version of the Virtuality graphics system.

Receiving Virtual Reality Honourable Mention were GreyStone Technology, who introduced their MagBall entertainment system – a four or six networked VR machine using special pods. Their new sports game, a mix between ice hockey, football, and *Destruction Derby*, proved highly popular with the shows attendance and gained a number of admirers by the end of the exhibition. →





Virtuality's *Total Recoil* utilises a shot-gun with built-in recoil device







Virtuality's VR shooting game, *Total Recoil* (above right), places the player at a shooting ground in a circus. Greystone Technology's new sports game, *Destruction Derby* (no relation), was a mixture of ice hockey and football (right)

→ Kaiser Electro-Optics launched the second game for their Virtual Odyssey platform. Their original *Cue-View* pool simulator was now joined by a VR game called *Orbatak*. Based on a 2D track-ball beat 'em up developed by American Laser Games, more famous for their laser disc games like *Mad Dog McCree*, KEO have created a 3D gaming experience that feels like a cross between the Atlasphere event in Gladiators (where the players roll massive spheres like hamsters in a cage) and bumper cars.

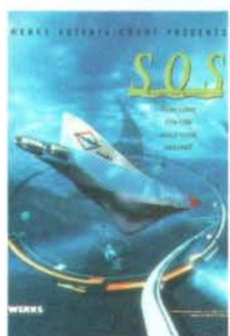
Both Sega and Namco also had a strong presence at the show, exhibiting a mouth-watering selection of their new releases. Namco seemed to have a slight advantage of arch-rival Sega by displaying skiing simulator, *Alpine Racer*, with a four-player link-up, and an eight-player *Rave Racer*. The company also showed an 80% complete version of *Time Crisis* (their System 22 shooting game to rival Sega's *Virtua Cop*), the unique 'duck and cover' pedal receiving much praise.

Sega countered with a visually impressive line-up of dedicated machines. For the first time outside Japan a four-player linked *Manx TT* was on display. The revolutionary 'feet-off-the-ground' riding position and the impressive Model 2B graphics wowed a large crowd of waiting players.

Virtua Cop 2 and *Rail Chase 2* were also no show, along with the new ST-V system with a complete line up of Saturn games.

But it was the VR for which IAAPA proved successful, and the industry is now looking forward to next year's exhibition, when market leaders will have clearly emerged, and new technologies will be available to excite and entertain.

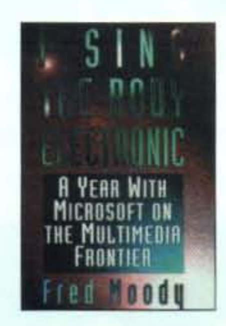




Iwerks Entertainment premiered the latest CG-driven location-based simulators

Essential reading

I Sing the Body Electronic



- **Fred Moody**
- Corgi, £5.99

ISBN 0-340-59982-0

In Bill Gates' office, on the Microsoft campus in Seattle, veteran computer industry journalist Fred Moody finishes explaining his book proposal. He wishes to spend a year with a crack Microsoft development team observing every stage of the conception, design and production of a new software product. Bill twiddles his pencil, rocking back and forth in his large leather chair, contemplating the proposal.

'Supercool, Fred. Let's go for it. I have just the project. Carolyn, can you escort Fred to... Sendak.'

Project Sendak, the 'multimedia frontier' of the book's title, is an animated CD-ROM encyclopedia for very small children. As with many software products, the team designing and programming Sendak are themselves only slightly older than the product's intended audience. They are also highly creative, competitive, and egotistical. Moody had obviously expected Microsoft to run like Marks and Spencer, and is thrown when confronted by screaming adolescents arguing incessantly and apparently achieving nothing concrete. This sways the focus of the book away from Microsoft and towards the individuals in the team, giving rise to a major fault.

Moody quickly becomes bogged down in detailing the minutiae of their arguments, power struggles and crises of personal development. The collective tears of joy the team members shed at the breakthrough over the design of the bunny ears in the hedgerow scene are worth describing once, but these people are not sufficiently interesting to withstand repeated microscopic analysis of their every word and thought. The Right Stuff it is not.

Nevertheless, beneath the web of intrigue in this surreal corporate kindergarten is buried a well-written and interesting book which breaks out far and often enough to keep the reader going. Moody's transcripts of Gates' brainstorming with his senior managers are illuminating both of his business methods and the constant fears which drive him so relentlessly onward. But it is the description of the creative process itself, clouded as it is by the personal detail, which drives the book along. As a description of how something new, and a children's CD encyclopedia is something new, is conceived and developed, it is an important document. It is a pity that a good book that could reveal the inner workings of Microsoft is compromised by a dull one concentrating on the characters within the Microsoft corporation.

viewpoint



Express yourself in **Edge**. Write to: **Edge** letters, 30 Monmouth Street, Bath, Avon BA1 2BW

It seems the only method of settling the dispute over which of the two consoles from Sony and Sega will emerge as the most popular will lie in the quality of the software each can produce.

It has already proven difficult to compare two games of the same genre such as *Ridge Racer* and *Daytona USA* or *Tekken* and *Virtua Fighter* as each game plays very different in comparison.

Surely the only way of testing which machine can produce the best software is to review an upcoming game such as *Mortal Kombat 3* which is likely to debut on both consoles at the same time. Therefore, the playability and graphical capabilities of both machines can be compared fairly and accurately.



***Wipeout* may exhibit excellent design ideas, but do essential flaws in its gameplay indicate that Edge's mark was more of a first impression rather than a final opinion? See letter from Marcello Cangialosi**

In the past, during the Mega Drive-SNES war, it was usually the Mega Drive which emerged as the victor, due to superior playability in games such as *Mortal Kombat 1 & 2*.

David Magni, Kent



To compare the Saturn and PlayStation, ignore the latest 3D games and use a simple title like *MK3* as a benchmark, says David Magni

To compare the Saturn and PlayStation using a game such as *Mortal Kombat 3* as a benchmark is, frankly, ridiculous. Both machines have the hardware capabilities to easily produce an arcade-perfect conversion of the game, and so any flaws in the end product will centre around the programmers' failings rather than the console's.

And to claim the Mega Drive was superior to the SNES shows a certain naivity. The SNES's hardware and game designers enabled games such as *Pilotwings*, *Super Mario Kart* and even five-year-old *Super Mario World* to include gameplay elements Mega Drive owners could only dream of.

I'm afraid I have to agree with the letters from Bryan Keet (**E**26) and G Wilson (**E**27). You most definitely have a problem with any positive aspect of the 3DO. Even in your fairly good prescreen of *Star Fighter* (**E**27) you managed to get your quota of slurs in like 'sluggish technology' and 'relatively plodding hardware'. You also said there was only one 3DO title worthy of your 'oh so high and mighty' attention for a prescreen.

Maybe you didn't know but *Captain Quazar*, *Foes of Ali*, *PO'ed*, *Battlesport*, *Pheonix 3*, *Shockwave 2*, etc are all pre-Christmas releases. Are you saying these titles are not worthy of your attention? Who do you think you are?

As you well know, The 3DO Company is gearing up for the M2 upgrade, so that the 3DO can stay ahead of the competition, as it has been since it was launched two years ago. For much less than the cost of a PlayStation we can plug in new technology, at least seven times more powerful and with built in MPEG. People who have bought, or are thinking of buying, a 3DO can relax knowing that it is an upgradeable machine that can take new technology as it comes

along, leapfrogging the young 'closed-system' pretenders.

Robert Donald, Edinburgh, Scotland

If you read the 'slurs' in the *Star Fighter* prescreen in context you will see they were in fact necessary to explain some important elements of the game. 'Pop up' is seen in all 3D games, including titles for the Saturn and PlayStation. However, few games on either system experience the effect so heavily as the 3DO in *Star Fighter*, and hence an explanation was needed.

As for your long list of releases for review, **Edge** is a multi-format magazine and is therefore forced to choose games for inclusion rather than simply fill its pages with a monthly release schedule. That selection process is based on the merits of each game, but just as much, on what games are reviewable by the magazine's deadline. *PO'ed* was considered worthy of attention, but *Phoenix 3* is the kind of badly-designed rubbish that will never make it into the magazine.

Regarding M2, it seems ironic that 3DO owners are desperate to eulogise about the merits of M2's hardware without making reference to the games it will be playing – surely the issue most 3DO owners should be concerned about.

What kind of media-related industry releases product then, six months letter, freely admits it was sub-standard and releases a new updated version with an air of 'forget that old rubbish, you need new and improved Product X'? I refer specifically to *Virtua Fighter* on Saturn, *FIFA* (Bruce Macmillan makes a special point of rubbishing previous incarnations in **E**25), *Killer Instinct* (to be 'improved' for U64 release), Saturn *Daytona*, etc.

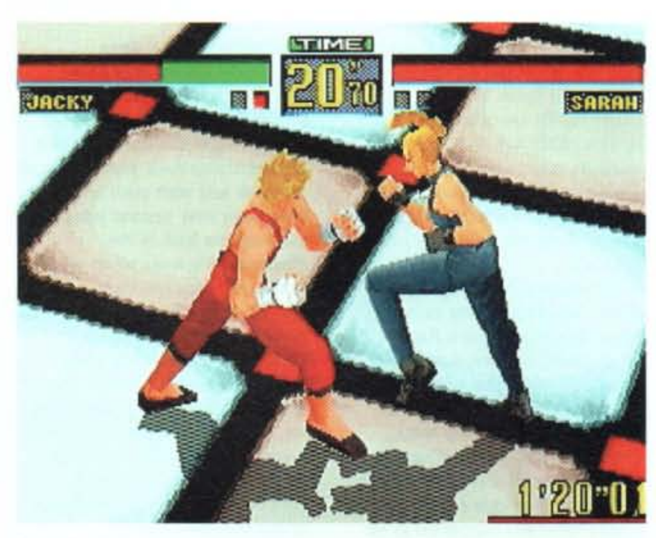
I work in the music industry and I can assure you that if Michael Jackson was to apologise for the tardiness of History, or Madonna neglected to put four tracks on her latest CD – but don't worry it will be complete in six months when you can shell out for it again – they would be lambasted from all concerned, and quite rightly so, for artists like these (and every other in this field) finish before selling.

I'm not saying there isn't sometimes scope for improvement in games – EA's *John Madden* just gets better and better, *Lemmings 3D* sounds cool, *Sega Rally* over *Virtua Racing* is great stuff. These games, however, were right in the first place and have simply been tweaked or enhanced as technology and programming skills have advanced. Healthy stuff. But as for the rest of you – rubbish, rubbish, rubbish! So I say to **Edge** and your educated readership, do not accept this attitude. It is up to us, the players and payers, not to buy this limpware. The videogames industry is always claiming to have grown up. Act it.

Benjamin Bufton, Surrey

Although game coding has grown from a home-based hobby into a multi-million dollar industry, the same perpetual flaw still exists – poor quality products. The problem stems from simple economics – if the games aren't released on time the company will go bust. By cutting corners to meet a deadline, however, quality is lost. The compromise, therefore, is a mediocre game released on time.

Another idiosyncrasy to the games industry is the necessity to release titles related to hardware launches. *Virtua Fighter* is perhaps the best example of a game that had to be completed in time for a hardware launch. Without it – however underprogrammed it was at the time – Saturns would still be sitting on shelves collecting dust.



Benjamin Bufton is angered by companies' releasing underprogrammed games only to improve on them layer, as with *VF Remix* on the Saturn

I recently visited a car boot sale where this man was selling copied PlayStation and Saturn games. All the games were Japanese and American versions, were really good quality and were on sale for £20 each. Because the Japanese and American games are released first this man is able to copy the games and sell them to British owners.

If Sega, Sony and Nintendo were to release games over here at the same time this would stop a big percentage of copied games being sold, so really they are partly to blame. Will games ever be released in Europe at the same time as Japan or America?

Gary Stohl, Middlesbrough

With the advent of CD-ROM games, developers dreamed of a day when piracy would be eliminated, but already CD piracy is rife. Games piracy has a crippling effect on the industry and the problem is unlikely to ever go away. However, to exonerate such activity because of software companies taking time to release PAL software is irresponsible. If PAL versions were available would that stop you rushing to your car boot sale and buying a cheaper copy?

The very nature of PAL software means that they will often appear after their NTSC counterparts – PAL games coded in the US and Japan, for example, are often delayed because of re-programming for the 50Hz PAL standard and because of the need to organise UK marketing and distribution. This does not mean that illegal pirated copies should be considered, though, and it's worth remembering that repeated use of the disc swap trick, needed to make copied gold discs run, damages the PlayStation's CD drive in the long run.

In a magazine like **Edge** the quickness in reviewing the latest videogame may lead to errors of judgment due to both hurried and superficial testing of the game. The 'final opinion', presuming a mastered examination of the product, has lately tended to coincide with the 'first impression' without



Robert Donald cannot understand why Edge hasn't covered 3DO games such as *Phoenix 3* (above). Of course they're worth it, he asserts

Continued next page

viewpoint

Continued

actually getting into the game in order to point out its qualities or its deepest flaws. *Wipeout*, as **Edge** rightly reported in its review (**E**25) has got many qualities, but a closer look at the game sheds light upon some imperfections I doubt a 'nine out of ten' game should score. Here they are:

1. Sometimes, crashing into a CPU-guided opponent causes (especially running at a Rapier class speed) an inexplicable and sudden acceleration of both vehicles causing them to crash into the barriers of the track. While our AG-machine hobbles to regain speed and continue the race, the other one seems to ignore what has happened as he easily passes through the barrier and re-enters the track at top speed like a ghost passing through a wall.

This inconvenience is very frustrating during precision races like the one in the Rapier class. In 'rules of the game' in **E**12 it said, 'A game should never make you feel that it has done something unjustified to you.' Well this is just what happens in *Wipeout*.

2. Arriving at the last track of a championship race, placed first in the rank and with such an advantage over second place, assuring the lead of the championship even when eighth in the current race, does not allow you to play with the deserved calm because you always have to finish at least third to qualify! This does not make any sense and surely does not reward the player so skilled to get this high in the rank, as well as nullifying the points allotment for the qualifications under the third place.

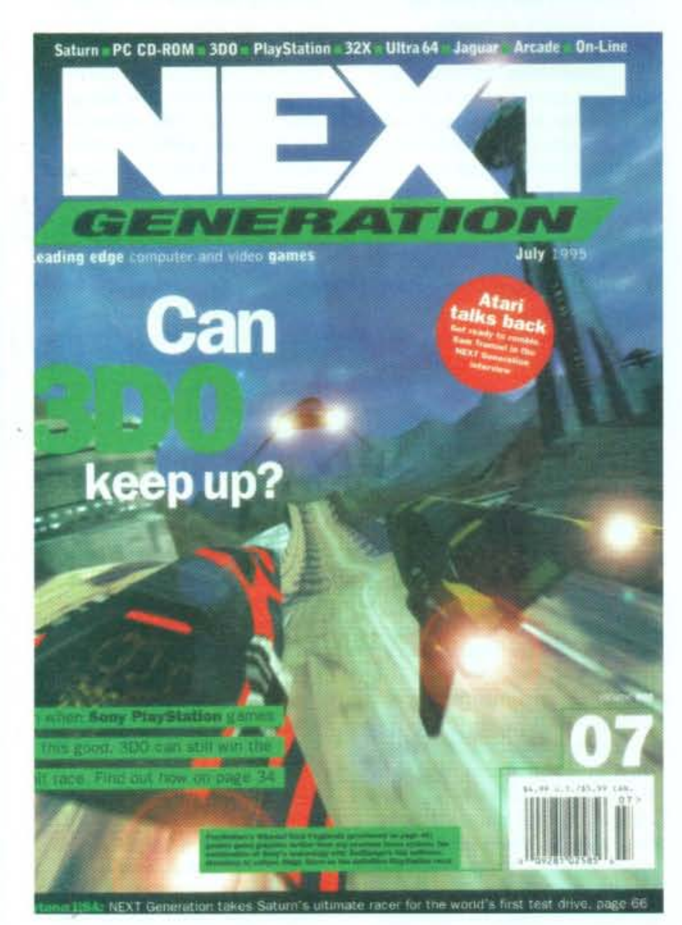
3. Talking about rewards, where are they in *Wipeout*?

Completing the easy Venom class, there appears just a sentence telling the player to access the Rapier class – the same tracks but faster machines. How much space is there on a CD-ROM not to afford new tracks and end sequences? I might be crazy, but I loved the various sketches at the end of each race in an old 16bit, 4Mb game called *Mario Kart*. Where are they in the 32bit experience that is *Wipeout*?

Marcello Cangialosi, Taranto, Italy

Edge rewarded *Wipeout* with eight out of ten (**E**25) not nine, because it was felt that the game lacked some of the fine-tuning that makes racing games such as *Super Mario Kart* and *Stunt Race FX* classics. In terms of control, graphics, music and concept design, *Wipeout* is a stunning product and possibly the strongest UK-originated design concept yet seen. However, in gameplay terms it could well have done with a couple more months play-testing (causing it to miss the UK launch, which would have been unfortunate).

On a more general level, **Edge** devotes as much time as it can to assessing the month's games, but occasionally a tight deadline means a tight turnaround and more recently some games have found themselves being pushed over an issue to warrant a more in-depth analysis.



Next Generation is Edge's sister magazine in the US. Published by Imagine Publishing, owned by Future's founder, Chris Anderson, it borrows many pages from Edge. See letter from Allen Huang

Thank you **Edge** for being an excellent next generation videogame magazine. **Edge** is up-to-date and has a vast variety of information that many find interesting. The unique presentation and design also contributes to the magazine.

I happened to notice that another magazine, Next Generation, is quite similar to **Edge**. Can you please explain?

Allen Huang, Auckland, New Zealand

Next Generation is a US magazine based around **Edge** and published in San Francisco by Imagine Publishing (a company owned by Future Publishing founder Chris Anderson). Many pages in Next Generation appear in **Edge** first, but occasionally **Edge** uses interviews and features originated from Next Generation. As NG editor Neil West (previously of Future titles, Sega Power and Mega) readily admits 'It's a cushy life this re-printing pages lark.'



Tony Hutchinson thinks Edge's coverage of the Jaguar has been unfair to Atari's machine

What has happened to your Jaguar coverage of late – it has been reduced to a few casual negative remarks. The Jaguar is still a good little machine and perhaps now the Jag CD has appeared, it's full potential will be realised.

Regarding Darryl Still's letter in **E**27, you have to remember that, as Darryl said in the letter, *Attack of the Mutant Penguins* was developed by a small UK team who don't have loads of cash. So what if the game doesn't push the boundaries of graphical technology, neither does *Worms*. *Zero 5* also looks interesting and if you are still giving the 3DO attention, then now the Jag CD is out surely the Jag deserves some, too?

Also, your Q&A section seems to think the Jag couldn't handle an adequate version of *Daytona* – of course it could, especially if programmed by decent developers or if made two years down the line when everyone knows their way around the console (of course it would run slower, have less on-screen action, polygons and texture-mapping).

Tony Hutchinson, Cheshire

'A good little machine' is an epithet more befitting the Spectrum or C64, not a supposedly 64bit console. To be frank, apart from the Jaguar CD there hasn't been any reason for covering the Jaguar in the past year. Games development has all but dried up and Atari's internal efforts, such as *Attack Of The Mutant Penguins*, are laughable. Once again Atari has let down the very people they need and shouldn't be surprised if these loyal followers ditch their Jaguars and upgrade to a games console with some software worth playing. A sparse, clunky, two-year old version of *Daytona* is no consolation.

Newsgroups

Usenet is a world-wide communication network. It is split into thousands of newsgroups each of which caters for a specific interest. Newsgroups work in a similar way to email except that when a message is posted to a newsgroup, it is not being read by just one person, but a potential audience of millions.

Site: **Videogames discussion**
Address: **rec.games.video**
Format: **Newsgroup, via a newsreader**
Origin: **Transglobal**

There are two categories of thought concerning newsgroups in general: first, that they are the last bastion of commercial-free activity on the Internet, and should therefore be applauded. Secondly that they are the domain of the sad, the obsessive and the seemingly perverted and therefore contain nothing of any worth whatsoever.

Forums dedicated to videogames can be found littered across the net. Edge found both intelligent chat and text-based fisticuffs

To discover which of these categories videogame discussion groups would fit into, **Edge** looked at several dealing specifically with the main videogame companies at the moment: Sony, Sega, Nintendo and 3DO. **Edge** also posted a message on the newsgroups asking a few questions about the quality of debate available and about what newsgroups have to offer the Internet and the videogames industry itself.

The first thing to note about videogame newsgroups is that (as with most other areas of Usenet) all human life is represented there. Twelve year olds with SNESs, programmers, advertising execs, hackers, belligerent adolescents – whatever the debated topic may be, it is as enthusiastically approached by immature brats as it is by older and wiser videogames players. Take the subject of hardware: there is some genuinely intelligent discussion in this area, focusing on specific machine features and looking at their strengths and weaknesses. For example, in the week that **Edge** studied the newsgroups in depth, there was much debate concerning the Ultra 64, including, for example, comparisons between CDs and cartridges as storage media (with cartridge storage targeted as a major U64 flaw). There was no, 'CDs are shit, cartridges rule' type inanity, instead some useful, if somewhat technical, input.

The level of analysis on offer may not be to everyone's taste, but at least it is constructive and informative. Unfortunately though, and predictably, debate concerning hardware is easily dominated by puerile 'my machine is better than yours' nonsense which is both immature and achingly dull.

Software debate can suffer from the same kind of nonsensical rivalry. Michael Ziniti, a subscriber from Harvard university, told **Edge**, 'A large percentage of posts to the newsgroups are from people fighting over *VF2*: A hates it for this reason or that, B flames A because A obviously doesn't know what he's talking about, and then C says '*Tekken* is better!' Then we simply start over with the same argument again'. The week that **Edge** looked at the newsgroups, there were dozens of postings which said little more than, '*Virtua Fighter 2* is great and *Tekken* is awful' and vice versa.

Nevertheless, it is perhaps in the software debate that the newsgroups excel. Gaming hints, for example, make up a sizable portion of posted material, and there is some useful info out there (including loads of special moves for *VF2* that will take months to surface in conventional printed magazines). The reviews are often little more than stunted vignettes along the lines of, '*Destruction Derby* is great. The music is great and the two player mode is wicked' – it's hardly in-depth analysis, but, for those who are considering making a purchase, the reviews do offer a series of knee-jerk reactions which can steer a potential buyer away from real dogs (if everyone on the newsgroup writes, 'this game stinks' there is a good chance that it does, in fact, stink).

Another positive element of the reviews is the speed at which they appear. Anyone that buys a copy of a new game can play it and have a review on a newsgroup in a matter of hours. Conventional printed media just cannot compete with this speed of communication.

In many ways though, newsgroups fulfil a similar role to videogame magazines aimed at younger players. Kids boast about high scores, ask for games advice, offer to sell used hardware and software and generally bicker over which platform is the best and why. Added to this, however, is some stimulating debate and the chance to get hardware and software advice from some incredibly knowledgeable people.

But don't make the mistake of thinking that the newsgroups can be likened to a communal Utopia where accurate information is circulated between friendly people. →

To access Usenet you will need the correct newsreader software. See **.net magazine**, or one of its **.net guides**, for more information.
For online info about Usenet see:
http://www.smartpages.com/bngfa

Researched...

Newsgroups
rec.games.video.nintendo
rec.games.video.sony
rec.games.video.sega
rec.games.video.3do
rec.games.video.advocacy

For a list of newsgroups dealing specifically with PC gaming advice see Jet's Game Page: http://www.aloha.com/~jet/games

→ There is a flip side. If scrupulous facts can be circulated world-wide in a matter of just a few hours, so can misleading and inaccurate speculation. Each newsgroup is full of postings which correct the information to be found in earlier postings which were, themselves, often just corrections to even earlier postings.

Essentially, when you open a message, or post something yourself, you never quite know what you're letting yourself in for. Many subscribers are full of mindless vitriol, which often leads to the flaming of fellow participants and general unpleasantness. It seems that many are so passionate about their opinions they are prepared to perform acts of electronic vandalism to make a point.

But how important are these newsgroups in the general scheme of things? Do they have any effect on the videogames industry as a whole? Clearly many subscribers feel they do. In their emails to **Edge**, many refer to Any Channel's game *PO'ed* (see page 80) which was apparently re-designed after Phil Lam (writer and marketing manager at Any Channel) studied ideas for the game that were discussed on rec.games.video.3DO. Similarly, an enthusiastic subscriber, Dave Haupert, goes as far as to assert:

I don't think *Way of the Warrior* would have sold so many games if it weren't for the programmers and testers befriending the netters and getting enough respect from the fellow news readers to buy the game first without first trying it

It seems, then, there is a real relationship between newsgroup subscribers and videogame companies: 3DO even employ a member of staff – Neal Robison – to keep an active presence on Usenet. Shawn Rader puts it like this:

I feel newsgroups are the single most important segment of the Internet. The web is all flash, and little substance. Usenet, on the other hand, allows people to express their ideas and thoughts to a vast number of people, creating what is arguably, the largest communication forum in history... **E**

Usenet chat

Here is an example of a typical Usenet conversation, titled Ultra 64 Bullshit, that Edge discovered while researching this page...

Oooh yeah. Love those simulators and driving games. Must be great to have a system with nothing but sports, simulators and racing games.

Ummm... what else is there? I guess if you like to run around looking like a dragon in a go-kart, the Ultra64 will provide a little more variety, but real men usually prefer sports, simulators and racing games. But then again, everyone is different, this is again a mere opinion. :)

Indeed. And then you will see PSX start to die... along with Sega.

Don't count your Yoshi's before they're hatched. If you think the Ultra 64 can compete with a CD-based machine price-wise, then you have another thing coming. Nobody likes to spend over $200 on a machine and then have to turn around and buy $100 games, or an expensive add-on storage medium for it. At least not in the good 'ol USA. Look out Neo-Geo.

Believe what you will, but until this God of a machine comes out, we are all just spinning our wheels. Wait until the shit hits the fan before we start tossing it.

Hardly Tarantino, is it?

They were the most important games of the PlayStation's UK launch, but according to Sony Interactive Entertainment (formerly Psygnosis), *Ridge Racer*, *Toh Shin Den* and even *Wipeout* are yesterday's news. They were first generation. Welcome to the next...

Tenka

Format: **PlayStation**
Publisher: **SIE**
Developer: **In-house**

While the rest of the software development community is trying to match the technical innovations on show in games such as *Ridge Racer* and SIE's own *Wipeout*, SIE themselves consider these products to be archaic. Their commitment now is to what they call, 'the second generation of PlayStation games' – releases which seek to truly manipulate the machine, rather than make the best of what it is easily available. Martin Linklater, senior programmer on the Tenka team, told **Edge**, 'We think games like *Ridge Racer* and *Toh Shin Den* were very nice, but all they did was use the raw power of the PlayStation to throw polygons at the screen. What they lacked was subtlety. By using the power afforded to you by the PlayStation, alongside years of graphical expertise, we think we have managed to create a much smoother product, unlike the brash, hard-edged products that were the first generation.'

The first title to be developed as part of SIE's second generation manifesto is *Tenka*, a first-person perspective action game seeking to combine the heavy duty violence of *Doom* with puzzles and strategy elements usually found in more intelligent adventures.

Far from attempting to create another brain-dead *Doom* clone, SIE's game designer, Paul Hilton, is aiming to define a new game style for the first-person action genre. 'One of the many goals we are hoping to maintain is total immersion in a universe, suggesting to the player that events have both occurred and are occurring in the environment as he progresses.'

One way SIE have achieved this is through the implementation of sophisticated AI routines and clever planning of the layout and inclusion of baddies within the levels. These enemies will not, as in *Doom*, wander around doing nothing until the player happens to show up in their sector. 'We have approached the idea with a fresh outlook,' Hilton asserts.

But *Tenka* does not just set out to be innovative in the area of design. Graphical quality is always going to be a crucial factor in any game's success or failure, and its importance has not been overlooked by SIE. The pictures **Edge** has acquired are impressive, but what can't be appreciated in these static shots is the technical expertise on show in the game's 3D engine. Lee Carus-Westcott, *Tenka*'s producer, is quick to point out its advantages: →







The story to Tenka is still being written, but already the game looks to have a gloomy, noir-ish setting. These shots, from an early, incomplete version, emphasise the efforts SIE have taken when creating the surrounding atmosphere





The first person perspective is reminiscent of *Doom*

Game stats

Polygon Counts
Polygons used for the environment: 160,000
Polys in entire game: 32,000 per sector
Polys per disk access: 10,000
Polys per character: 100-350 Gouraud-shaded, textured, light-sourced

Frame Rates
PAL: 25 fps
NTSC: 30 fps

Tech talk

Low level programming
In the **Edge** Special, Andy Beveridge, designer of the PSY-Q development system for the Saturn, stated, '[the Saturn is] a real coder's machine. For those who love to get their teeth into assembly and really hack the hardware, the Saturn will probably pack a few surprises'. This practice – known as low level programming – is useful for making vast leaps in software performance and technology (see the difference between *Daytona* and *Sega Rally*). But do Sony's libraries handicap the use of this kind of low level programming on the PlayStation? Martin Linklater thinks not: 'Low level programming is very important when you need to squeeze every ounce of performance from a machine. In *Tenka*, we have used r3000 (a low level language on the PlayStation) in a few selected routines, but we normally find that the PlayStation has the oomph to cope with optimised C quite happily. It's very much a case of analysing what the code is doing, and identifying where execution time is important, which turns the technique away from C and towards r3000.

We have found that the Sony software libraries were ideal for 99% of the game code, but the other 1% is r3000 for fast execution of time critical code.'

Z-buffering
The PlayStation is also infamous for its lack of z-buffering abilities. Again, SIE downplay the problem. Martin Linklater: 'We have developed a system where we precalculate a lot of the sorting issues during the scene conversion process and use a fast realtime sorting algorithm during the game. Z-buffers are one method of ensuring sort problems are resolved, but they have difficulties with transparencies and entail a considerable processing overhead.'



'Never before has there been such a level of realism or complexity in environment and character graphics. The free-flowing nature of the geometry in the environment certainly hasn't been achieved in the past. This sort of graphical complexity, coupled with our light-sourcing system, allows uniquely high-quality graphics.'



Even the in-game map features some luscious lighting effects, making it look rather similar to *Loaded*

The advanced lighting system allows SIE to use as many realtime PlayStation lights in a scene as they want, all with realistic attenuation. In fact, in one of the game's larger scenes there are 404 lights in operation. Lead programmer, Simon Moore, claims, 'it is very hard to imagine just how good [the lighting] is from a screenshot, but when you see a character lurking in and out of the shadows, the effect is very impressive.'

The *Tenka* team insist that they have had no problems exploiting the PlayStation's lighting capabilities. SIE's system takes all the information it needs from *SoftImage*, Microsoft's 3D graphics software. Using this, as the editing tool in the conversion and editing process, appears to have played a prominent part in achieving the quality and realism of the environments. As Simon Moore told **Edge**, 'Our conversion process is so comprehensive that nearly all of the texturing and lighting capabilities of *SoftImage* can be interpreted by our converter. This includes things like alpha blend transparencies, UV mapping of patch models, repeated textures, spot lights, infinite lights, etc.'



Each of the characters in the game is made up of 100-350 polygons. Unlike *Doom*, there's not a bitmap in sight



Whatever the quality of the 3D software being used, hardware restrictions will always have the final say in dictating what can actually be done on any specific machine. The PlayStation can present specific problems to programmers, especially with its propensity to warp textures. Texture warping is caused by the GPU interpolating texture coordinates linearly, without perspective correction. According to Paul Hilton this will never end without severely limiting the graphical environment.

Linked to this problem is the PlayStation's habit of smearing larger polygons when they reach the edges of the screen. Again, it seems to be something that cannot be avoided. So how did the *Tenka* team cope? Martin Linklater explains. 'Identifying when a polygon will warp is an important issue when programming a 3D graphic engine on the PlayStation. *Tenka* incorporates a dynamic multi-stage clipping and meshing system whereby we can minimise this effect considerably. We've also tackled the issue of polygons being lost from the screen's edges. We can identify when problems may arise, and compensate.'

Problems are also apparent in the PlayStation's geometry engine (GTE). Again, SIE's philosophy is one of predicting where 'things approach the limit' and helping the hardware solve the problem itself.

Given the problems that SIE have managed to overcome in the production of *Tenka*, coupled with their innovative use of the *SoftImage* 3D design package, consumers can expect a graphically stunning title, an equally smooth 3D engine and some breathtaking special effects. Paul Hilton is still working on the storyline but promises more than '*Doom* in proper 3D'. As Lee Carus-Westcott says, 'Unlike some games, the complex graphics engine goes hand in hand with the gameplay, rather than limiting it.'

Gamers are tired of the often inversely proportionate relationship between stunning graphics and gameplay. Maybe SIE's second generation titles will re-address the balance once and for all.



***Tenka*'s features some incredibly smooth Gouraud shading**





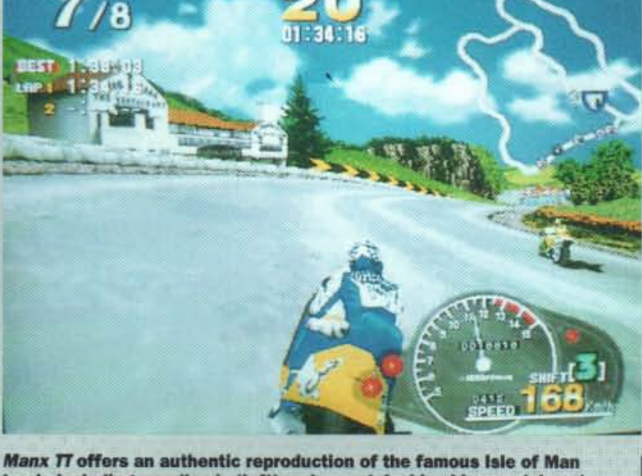
The advanced light-sourcing techniques employed by SIE add atmosphere and considerable depth to each location. One large setting has 404 lights in operation

Famous for their realistic 3D racing titles *Rad Mobile* and *Sega Rally*, AM3 have now directed their talents toward motorbike racing. **Edge** caught up with the revolutionary designers in Tokyo

Manx TT

Developer: **Sega/AM3**
UK release date: **TBA**
Origin: **Japan**





***Manx TT* offers an authentic reproduction of the famous Isle of Man track, including woodlands (left) and mountainside chicanes (above)**

Manx TT, based around the Isle of Man motorcycle race of the same name, is a game with an unparalleled level of realism. The data for the game's central track has been derived from the actual roads of the official TT course – from the start the player rides through the woodlands, across the countryside and into the seaside town, up to the mountains and back to the city's main street for the finish.

The attention to detail does not stop there, however. The cabinet includes a throttle-induced kick-back system, which pushes the bike towards the body to exaggerate the sensation of speed, and a revolutionary sound system that vibrates the player with sounds sampled from real TT bikes, including a woofer speaker set in the muffler to recreate the distinctive exhaust note of a TT bike. Innovations like this can also be found in the driving experience – when riding, the feet can be lifted off the ground and the bike steered using body weight.

Manx TT's basic cabinet comes equipped with two such hydraulic-controlled bikes, with the possibility of a four-cabinet link-up enabling eight players to compete at once. This link-up was first shown at the JAMMA (**E**27) show and received a universal welcome from all who attended.

AM3, the team behind *Manx TT*, allowed **Edge** to speak to four of the key players behind the game's development – Tetsuya Mizuguchi (Producer), Jun Uriu (Chief Designer), Shinich Fujii (Planner) and Norimasa Yatsuzuka (AM3 Public Relations).





Producer of *Manx TT*, Tetsuya Mizuguchi (top). Sega's Japanese offices house the AM3 R&D team (above)

Edge What was the first racing game that AM3 developed?

TM *Super Monaco Grand Prix*. Then it was *Rad Mobile* and following that I did *Sega Rally*. *Manx TT* is the first bike game AM3 has developed.

Edge Is *Manx TT* based on *Hang-On*?

TM Actually, once development had begun on *Manx TT* we discovered a game named *Sega Man TT Rally* in Sega's catalogues. This was also a bike arcade game with feedback handlebars but it was released in Japan about 20 years ago! The creator of this game, Sato, is now responsible for the Saturn's hardware at Sega. So, *Hang-On* was not the Sega's first bike

game but the first to make an impact.

Edge How many staff are currently working on the *Manx TT* team?

JU We have 11 working on software and design and two on the sound.

TM Hardware staff included, we have a total of about 20 on the project.

Edge When did development start?

TM March 1995.

Edge Why did you decide to base a game around the *Manx TT* race?

TM After *Sega Rally*, I wanted to make a game with a big graphical impact that used the player's body. Looking through a magazine, I saw an article about the Isle of Man and I found the island very beautiful – perfect for a nice racing game. Moreover, in Japan there are groups of bikers who love riding bikes on the open road. I wanted to make a bike game mixing these two elements.

Edge How complete are current versions of the game?

TM Now, around 70% of the game is complete. The cabinet, developed by AM4 in co-operation with out team, is almost finished.

Edge How many courses are being designed for the final game?

JU Two. One is an existing course based on the TT race. The other course, still in progress, is an original seaside track.

Edge Will there be a selection of bikes to choose from?

JU Currently, the player doesn't have a choice as there is only one bike. The end game will have four different bikes with different specifications.

TM In the game we've tried to recreate different styles of riding. We believe there is a German technique, an American technique, etc. The bikes themselves will have different ways of running, different levels of aggression. The player can choose a bike from one of these specifications. We received some advice from the Castrol Honda team and co-operated with their R&D team.

SF The Castrol Honda team also helped us with the sound effects – we wanted the driver to really feel like they were on a bike. To do this, the sound has to come from a certain part of the bike. We also sampled a real person riding a bike.

TM When making the cabinet, it was important for us to discover how the sound travelled to the ear of the rider.

Edge Will the end game possess the same driving sensation as the game on display at the JAMMA show?

JU At the show the interaction parts were almost finished and the kick-back action system was connected.

TM However, when it's released the bike should be easier to drive than the bike at the AM show.

Edge What do you think *Manx TT* has over Namco's *Cyber Cycles*?

TM To be honest, I really like *Cyber Cycles*, but the courses all look the same and are not very varied. *Manx TT* features tracks with characteristics directed towards jumps and the courses are varied and very beautiful. Also, *Manx TT* is more realistic than *Cyber Cycles*. We believe we have reproduced the real feeling of driving.

SF Technically, *Manx TT* was a real challenge. We really made efforts to develop a great analog cabinet.

TM You really drive the bike as if you were driving a real bike. You don't







Providing a lot of *Manx TT*'s pulling power will be the unique tilting bike on the unit – players can use their weight to bank around corners...

...and AM3 have designed the graphics engine to ensure the display banks in harmony with the bike

Arcade charts

Top ten PCBs	weeks in charts
1 Marvel Super Heroes (Capcom)	2
2 Senkyu (Seibu)	3
3 Desert War (Jaleco)	2
4 Puzzle Bobble 2 (Taito)	9
5 Striker 1945 (Psikyo)	17
6 Space Invaders 2 (Taito)	9
7 Viper Phase 1 (Seibu)	21
8 Quiz (Nahanikon)	28
9 Tekken 2 (Namco)	14
10 Stakes Winner (SNK)	7

Top five dedicated arcade games	
1 Rave Racer (Namco)	7
2 Virtua Striker (Sega)	13
3 Daytona USA (Sega)	61
4 Cyber Cycles (Namco)	20
5 Sega Rally (Sega)	36

Continued next page

move your hands so much, you drive with your body. The main problem of games like *Cyber Cycles* was the position of the player's head. When turning into a slope, the head moves from the centre of the screen, so the impression is less realistic. With *Manx TT* we tried to compensate for this and succeeded in keeping the head centralised where the visual impact is strongest.

Edge Surely such a cabinet is very expensive to make?



In order to keep the game's speed at 60fps, AM3 had to set a limit on the number of polygons used in the construction of each bike. The result is realistic-looking bikes made from relative simple shapes (left)

TM (laughs) Yes, it is very expensive. There are lots of sub-motors.

NY We plan to produce a lot of them, so the production costs will be lower. The price should be the same as that of a car racing game cabinet.

Edge And the game uses Sega's Model 2 board?

TM Yes, we used a CRX-A Model 2. It is the same board used in *Sega Rally*.

JU It is more or less the same board found in *VF2* as well, but the version is different. *Virtua Fighter 2* used an A Model, we have a B Model.

TM Concerning the sound, to keep the realistic impression we needed four outputs. The Model 2 has two sound outputs, so we needed to find some more somehow. In the end we used an additional Model 1 sound board to cross over.

Edge Doesn't it pose technical problems using the same hardware as found in games such as *Daytona USA*, which is nearly two years old?

TM Yes, it is the same board but what makes the difference between the two games is not necessarily the hardware, but the influence of the designer. Designers use textures in different ways, which gives a different aspect to the game.

Edge And does a bike game throw up any technical limitations?

TM Well, to make a bike you need more polygons than are required for a car. When we said we wanted to have eight bikes in competition, everybody thought it was impossible because of the high number of polygons needed. Such precise graphics require a high number of polygons, which obviously slows down the action if you go too far. So we set ourselves a limit on the number of polygons for each bike. Our designers then drew the bikes within the limit, using their full experience to ascertain how many polygons would actually be needed. They succeeded in making very nice bikes that used relatively few polygons. Of course, some bike designs will use more polygons than others, but eventually we succeeded in make our eight-player version without speed loss.

Edge Do you think it will be possible to convert all of *Manx TT* comfortably to the Saturn?

SF When we develop games we aim for a specific arcade market without the Saturn in mind. We then see if the game is a success or not before deciding to convert it.

TM To be honest, I think a game can lose some impact after being converted. It's logical to convert a game if we can guarantee no loss of quality but it would be difficult to convert a game like *Manx TT*. I can't really see us releasing a Saturn handle bar kit for ¥3,800! (general laughter). One of *Manx TT*'s strong points is the cabinet and the home version would suffer dramatically without it.

Manx TT will be released in arcades in early 1996.

AM3 – better by design

The team behind Manx TT are Sega's Amusement Machine R&D dept. 3. Although it is AM2 who has the honoured reputation of employing the Japanese games industry's best programmers, AM3 is renowned for its wealth of talented designers and musicians. The 100-strong team last year released around four titles, an average for a department of their stature. This year they hope to improve on those statistics.

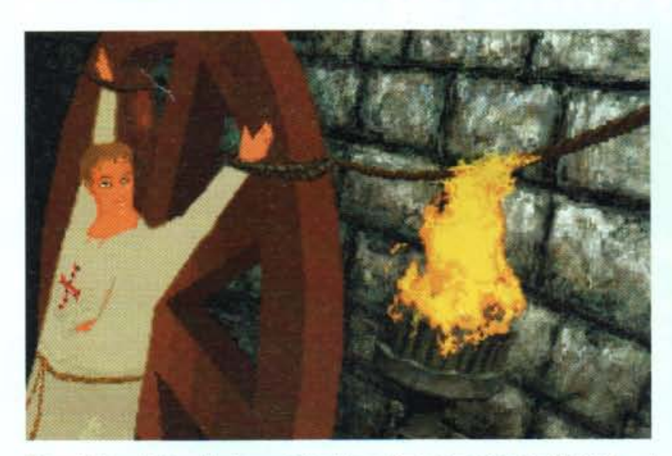


AM2 lands Sonic punch

Following the release of its *Fighting Vipers* coin-op, AM2 have just announced details of a Model 2 polygon game based around that eponymous icon of Japanese cuteness, Sonic The Hedgehog. From the shots released to the Japanese press so far, it looks as though the game is a one-on-one beat 'em up featuring characters from the series, including Knuckles. Expect more details to surface in next month's issue.

Time Gate

After setting the agenda with the *Alone In The Dark* trilogy, Infogrames are back with the first of a new three-part adventure



When William Tibbs, the hero of the game, first slips through the time gate he experiences some traditionally warm medieval hospitality

Format:	**PC CD-ROM**
Publisher:	**Infogrames**
Developer:	**In-house**
Release date:	**TBA**
Origin:	**France**

When Infogrames released its seminal *Alone In The Dark*, the French company basically re-defined the concept of the arcade adventure. *Time Gate*, the company's newest title, is the first part in a brand new series of three adventures employing a totally new scenario.

Technically, *Time Gate* is designed in much the same style as *Alone In The Dark*: the player controls the main character around a 3D environment with which he can fully interact (ie objects can be picked up, enemies can be fought, etc). The difference now is that the scenery is much more sumptuously detailed and the character animation greatly improved. Infogrames claims there will be over 250 sets and 40 characters in the final version, with each character using over 1,000 frames of animation. These graphical improvements have been made possible by a 3D mapper, developed in-house and used to model and Gouraud shade all characters and objects. Future installments of *Time Gate* will no doubt benefit from the even more advanced realtime 3D engine that Infogrames is currently



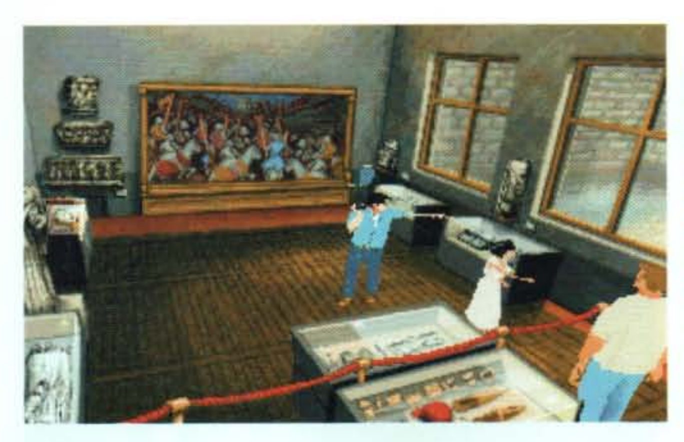


The game begins with William being informed of his destiny and his link to the Knights of the Templer. There may have been more subtle ways of doing this than slinging an axe through his newspaper, though





The game's interactive camera always finds the best perspective from which to view the action. In this sense, *Time Gate* is highly cinematic in look





A great part of the early adventure occurs inside the museum, where William must wander around and search for clues to help him unravel the mystery, revealed as play goes on

Infogrames claims there will be over 250 sets and 40 characters in the final version, with each character using over 1,000 frames of animation

perfecting (and which **Edge** has had a sneak preview of).

Meanwhile, the story to *Time Gate* is plucked from that well know genre – the Gallic-time-travel-RPG-sword-fighting-romance. The player controls William Tibbs, an American student who comes to France to improve his knowledge of international law. One night his girlfriend Juliette, a trainee archeologist at the Museum of the History and Traditions of the Middle Ages, is kidnapped and William goes off to the museum to investigate, only to be thrown down a magical well and transported back to the 14th century.

The game then becomes a historical thriller. It turns out that the museum is built on the site of a Knights of the Templer commandary and that William is actually a reincarnation of one of the knights. The player has to battle with the shady character known as Wolfram the Red-haired Fox so that William and Juliette can return to modern day Paris.

There are some excellent background scenes in *Time Gate* including a suitably dingy 14th century dungeon and the picturesque museum grounds and interiors. If this graphical quality is maintained throughout the game and backed up by a similar standard of puzzles and action sequences, this title should see Infogrames reasserting its status as one of the leading designers of arcade adventures.



The catchily titled 'Museum of the History and Traditions of the Middle Ages' is where most of the action takes place. In both time zones







The game offers a number of fully explorable and intricately detailed locations. Lighting and shadows are used to great effect, especially in the dank medieval settings (above left and main) which bring *Alone in the Dark* to mind

Sentient

Sony's intellectual thriller looks destined to become an RPG benchmark

Format:	PlayStation
Publisher:	SIE
Developer:	In-house
Release date:	March 96
Origin:	UK

The player has to investigate a strange outbreak of radiation sickness which is slowly killing the crew of a space station

Sticking vehemently to endless fighting games and arcade racers, Sony's PlayStation has so far been slow on the RPG uptake outside its homeland of Japan.

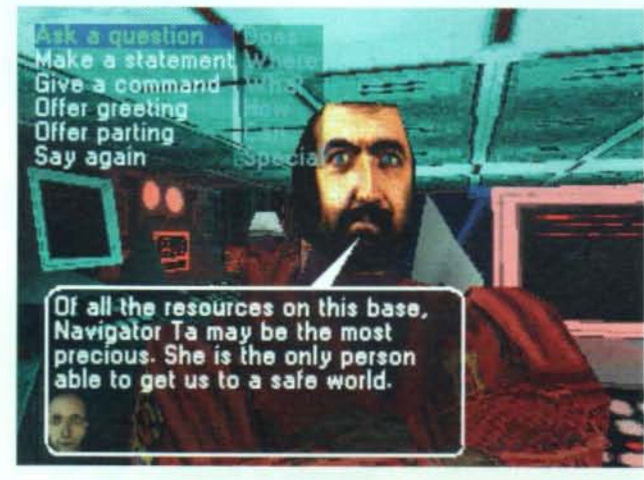
Sentient looks to be an RPG with a difference. It's in a first-person perspective meaning that at first glance it owes more to *Doom* than *Final Fantasy*. Gone are the simplistic overhead graphics RPG fans have come to expect – the environment in *Sentient* is lovingly rendered in 3D.

Another unfamiliar aspect is *Sentient*'s scenario, which moves away from sword and sorcery and into the realms of science fiction – the player has to investigate a strange outbreak of radiation sickness which is slowly killing the crew of a space station.

Perhaps the most notable element of *Sentient*, however, is its intricate interaction system which allows the player to create their own conversation. A subject can be picked ('ask a question', 'make a statement', etc) and an input constructed around it. The mood in which the speech is given can also be altered, 'flirt' and 'joker' being amongst the options.

Each non-player character also has his or her own alterable personality, emotions and agenda. How the player interacts with them can thus have definite consequences on the game.

Sentient looks to be an intriguing addition to the PlayStation's growing software library. With more and more in-depth titles on the way to Sony's cnsole, it could be an exciting time for the PlayStation's more cerebral owners.







***Sentient*'s communication system (top) shuns conventional Q&A-type input for more generic inquiries. By asking a question, for example, the words can then be constructed around that essential element**





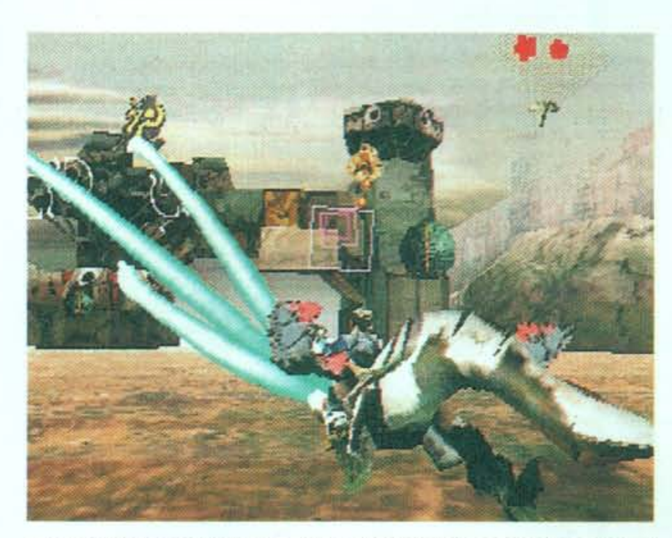
Although the scenery looks more akin to that found on the Titanic, *Sentient* is set within a solar space station



When wandering the corridors it is possible to look out of windows

Panzer Dragoon Zwei

Sega's sequel machine cranks into gear with a follow-up to its short-lived but beautifully-realised dragon epic



Panzer 2 **utilises 'on rails' gameplay, although the freedom within that area should provide sufficient realism for the player to feel in control**







The 3D obstacles to be encountered are huge (top). Meeting an enormous warship (above left). Watching the action from below (right)

As the game progresses the baby dragon grows older enabling further gameplay elements to be explored

Format:	**Saturn**
Publisher:	**Sega**
Developer:	**In-house**
Release date:	**TBA**
Origin:	**Japan**

Panzer Dragoon was one of the Saturn's 'killer apps' available just a few months after launch. Rumoured to be the most expensive console project ever undertaken by Sega, the game borrowed from the classic *Space Harrier* and added the depth and graphical characteristics associated with sophisticated 3D consoles.

The main attractions of the sequel will be the improved graphics engine and the addition of a new playing mode where the action takes place on the ground rather than in the sky. To storyline this addition the dragon starts the game as a baby, only able to walk and still clumsy with his wings. As the game progresses the dragon grows older and more skilled enabling further gameplay to be explored.

The fighting mechanism seems to be identical to the original game – a radar appears in the top right corner of the screen and enemies are targeted through the square on the main playing area. But with the addition of ground attacks *Panzer 1* virtuosos should find new difficulties to master.

Panzer Dragoon's limited gameplay will need a substantial overhaul if it's to deter criticism from jaded sequel junkies. Hopefully the company will pay as much attention to how it plays as how it looks.





Panzer Dragoon 2 **features versatile camera placing, enabling the player to view the action from differing angles. Here (right), the baby dragon, still unable to fly, is being attacked by a scorpion monster**

Civilization 2

The doyen of strategy games worldwide, Sid Meier, releases a sequel to the seminal *Civilization*

Format:	**PC**
Publisher:	**Microprose**
Developer:	**In-house**
Release date:	**March**
Origin:	**US**

The graphics in city view have also received a much-needed facelift, superseding the original's dull squares





Civ 2* uses a more attractive, isometric, graphical style than *1

To compare the frantically bouncy *Yoshi's Island* to the somewhat reserved *Civilization 2* is not as strange as it first seems. Both games have predecessors that rank among the most popular and fiendishly addictive games on their respective systems (the SNES's *Super Mario World* and the PC's *Civ*), both arrived unexpectedly after years of secret development and each is the work of a world class designer.

Civ 2 is significantly more than an update of the 1991 classic. Instantly noticeable are the graphics – every object now appears in isometric detail. The city view is now more akin to the flashy *Sim City 2000*, but the aim throughout has been to make the game identifiable to fans of the original.

Although it would have been easy just to update *Civilization*'s plain graphics and not improve the fundamentals, Meier has also tackled some of the original's 'weaknesses'. '*Civilization* greatly favoured the military approach to achieving victory.' Meier admits. 'We've now adjusted this balance to make trade and diplomacy a more integral part of the game.' The game now features a changed governmental system and a slightly altered trading strategy.



***Civilization 2* resolves one of the original's main weaknesses – the favouritism shown to military strategies**

More immediately obvious extras include 20 new military units with which to quash enemies. These include stealth bombers, paratroopers and elephants, but the main change is that all units now have damage points a la *Battle Isle*. It will now be possible to retreat damaged units and repair them in your cities.

There will also be a further 14 wonders of the world to bolster your forces and civilisation score.

Although programming of *Civilization 2* is all but finished, it is not being released until March at the earliest. 'Everything must be perfectly fair and balanced before we give the go ahead,' says Meier. Sounds like Miyamoto himself.

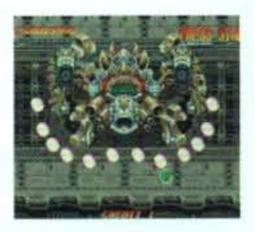




***Civilization 2* provides an extra 20 military units, ranging from elephants to stealth bombers, to employ when crippling the enemy**

Two-Tenkaku

Format:	PlayStation
Publisher:	SCE
Developer:	Sony Music Entertainment
Release date:	December
Origin:	Japan





Expect to see the clichéd end-of-level boss going up in flames

The 2D shoot 'em up is undergoing something of a 32bit renaissance. *Pulstar* on the Neo Geo CD and *Layer Section* on the Saturn are now being joined by Sony with *Two-Tenkaku*; a 2D vertical shoot 'em up, heavily influenced by *Raiden*.

Two-Tenkaku could not be referred to as innovative. The player defends the Japanese city of Osaka (its famous tower providing the game's title) against evil invaders. To do this he chooses from three different vehicles armed with either a laser rifle, a 'Liquid Blaster', or a 'Mash Blaster' (perhaps deliberately designed to sound like kitchen utensils). There are the usual power-ups and missiles, and also a 'Sussano' bomb (a smart bomb which torches all enemies on-screen).



***Two-Tenkaku*'s graphics look similar to those in *Raiden*, but with a Japanese bias**



A year ago, *Two-Tenkaku* would have had little competition, but with interest in the 2D shoot 'em up growing again, the game will need more than impressive power-ups to make it in this increasingly stagnant industry.

Horned Owl

Format:	PlayStation
Publisher:	SCE
Developer:	In-house
Release date:	Out now
Origin:	Japan

Now *Virtua Cop* has set the standard for 32bit shooting games, it's only natural the PlayStation should follow suit.

Due to appear shortly after **Edge**'s deadline, *Horned Owl* casts the player as an anti-terrorist 'cop', faced with the unwanted task of clearing the city of maniacal robotic adversaries.



First impressions of *Horned Owl* are surprisingly pleasing – the sprites are large and the 3D animation runs fast and smooth





In the ensuing gun game fight, *Horned Owl* is Sony's weapon against *V-Cop*

Gameplay takes place on rails, although there is a special 'speed up' button which accelerates the player through scenes. Another unusual feature is the use of bitmapped sprites, rather than polygon creations, for the baddies. Whether this will appeal to shooting game fans remains to be seen. Certain to be popular, however, is Konami's hand-held gun that accompanies the title.

Super Mario 64

Nintendo's main attraction at the Shoshinkai show was a half-complete 64bit Mario in 3D. But was this a logical evolution of gameplay, or merely a graphical showboat for Ultra 64?

Format:	**Ultra 64**
Publisher:	**Nintendo**
Developer:	**NCL**
Release date:	**April 96**
Origin:	**Japan**

At launch *Super Mario World* was, graphically, one of the least sophisticated SNES titles. However, it has always been the absorbing gameplay, rather than aesthetics, for which Nintendo's 16bit machine was lauded.

The zenith of SNES gameplay exists in *Yoshi's Island*, a fifth-generation project and the fruits of over ten years of labour and experience. It was this perfect evolution of the Mario series that led the rest of gaming by the hand, teaching lessons in game mechanics, structure and sheer playability to any students of game design.

But with the release of Ultra 64, Nintendo has had to start afresh. Boasting graphics on a par with Silicon Graphics workstations, the flagship title had to be seen to fully exploit the machine's hardware. In making *Super Mario 64*, therefore, Nintendo was forced to abandon







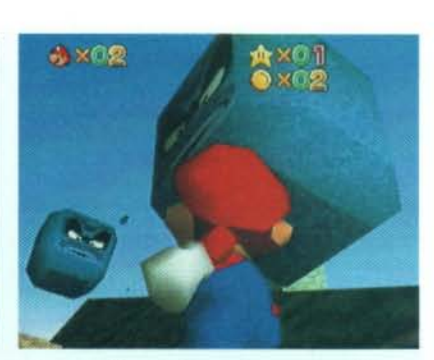




From the outset *Super Mario 64* looks destined to set a benchmark in both gaming and graphical design. Mario starts within the castle grounds (top), which is perhaps the best indication of the graphical quality. Later sections like this collapsing bridge (above middle) are beautifully implemented







The level of 3D intricacy displayed in *Super Mario 64* is astonishing, displaying a degree of texture-mapping and vibrant colouring unsurpassed by any of the current 32bit machines. Furthermore, 'block in' is a phrase that does not exist in Nintendo's dictionary – the scenery stretches on and on

3D Mario is realised exactly as one would imagine, complete with primary-coloured trademark overalls, cap, gloves and moustache

its 2D expertise and start from scratch.

The world of 3D is a brave new frontier, an uncharted wilderness with few previously successful titles to guide the way. *Super Mario 64* is therefore the start of a whole new book, not merely an additional chapter to the on-going 16bit story.

Veering towards the fantasy/cartoon world of the previous titles, from the outset this is obviously a Mario game. 3D Mario is realised exactly as one would imagine, complete with primary-coloured trademark overalls, cap, gloves and moustache. His familiar jog 'n' jump is instantly recognisable, even from the roaming, over-the-shoulder 3D perspective, and the terrain and obstacles he explores will feel eerily familiar to 16bit *Mario* veterans, with even some familiar faces appearing – notably Bowser, King of the Coopers.

The control of Mario – making use of the fully-analog 360° thumb pad – is superb. Nintendo technicians claim the pad can detect a full range of 360



One brilliant section sees Mario shot from a cannon (after a first-person targeting view) to glide down over the 3D world

directions, affording even the most basic of software a degree of directional control above and beyond the eight-way limit of a PlayStation or Saturn controller. The pad also adds a new dimension of velocity since it is able to detect degrees of movement in particular directions. *Mario 64* makes use of these features extensively: press up fully and Mario will run, press it halfway and he will walk, press it a little and in some circumstances he will crawl or tip-toe his way forward. In other sections of the game, for example when Mario is sliding down an icy slope or skidding down a bonus level race track, pushing left or right in various degrees will steer him subtly or drastically. This truly is a revolution in gameplay, yet one which must be experienced first-hand to be fully appreciated.

Once again, it is Miyamoto's knack of pacing that makes playing the game so satisfying. Experimentation is rewarded, not only with points bonuses and access to secret levels but with the subconscious learning of tricks and techniques that will be required later in the game. Upon first entering the



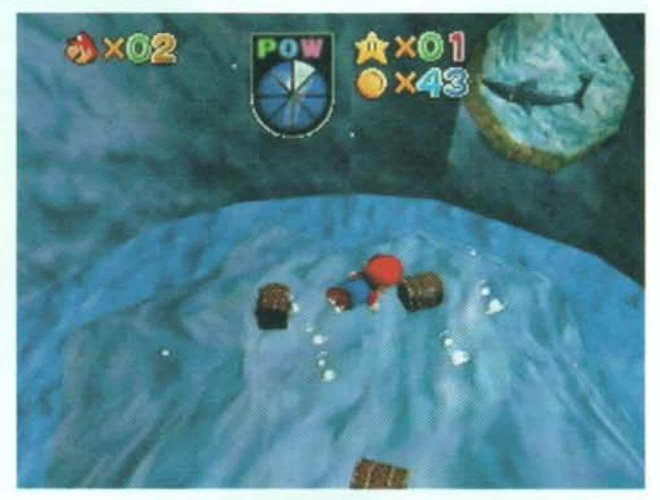
The level of detail in *Super Mario 64* allows for great comic moments, such as watching Mario's rear end catch fire should he fall into lava

Continued next page









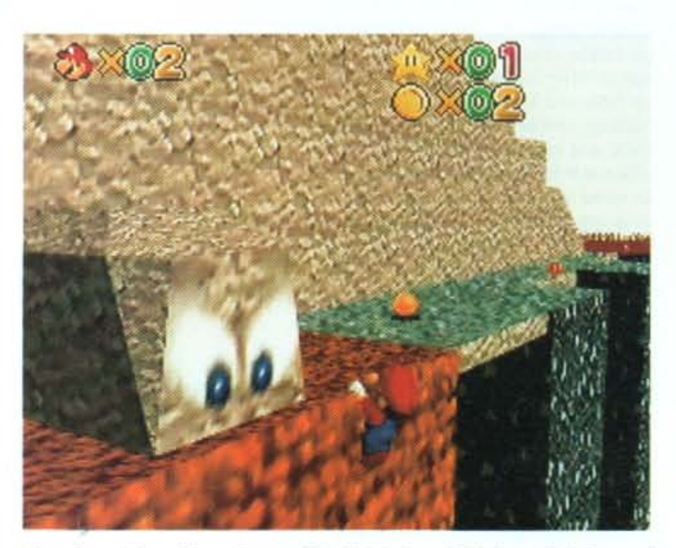
By falling off platforms, Mario is able to explore the underwater segments of his world, where he can discover hidden sections or extra treasures (above right). The use of transparency and depth-cuing is exemplary

Continued

ice level, for example, players will find it impossible to resist the simple – purely superfluous – urge to skid Mario around on his belly, banking off the small undulating hills and sliding down slopes. With no bad guys to interfere with the fun, and no time limit pressing, Miyamoto is gently encouraging the learning of a skill that will be tested later. It is this level of planning that made *Super Mario World* such a classic, and is alive and well in its 64bit big brother.

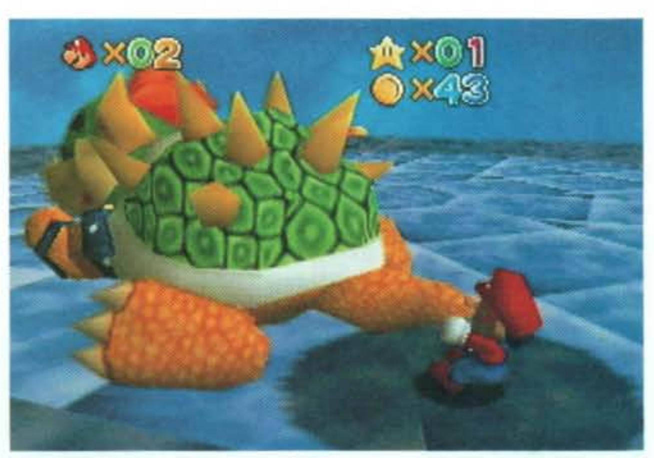
Mario's 3D world is a work of genius. Misjudge a jump onto a wall, for example, and instead of plummeting to your doom, you will find yourself diving into a lake. Mario automatically starts treading water, leaving the player to decide whether to scale the cliff back up, paddle around and explore the lake, or dive for hidden treasure. The degree of freedom is the most extensive **Edge** has yet to encounter. Everything can be touched, experimented with and explored. In creating a 3D world with real physics and extensive artificial intelligence, Miyamoto and co have truly created a virtual reality. Another example: in an orchard within the grounds of a castle, players may well seek refuge from the attack of ground-based enemies by scaling a tree. At the top of the tree you discover it is possible to jump out of the branches and onto the battlements of the castle. Further rustling of the tree's branches, however, will awaken a sleeping owl. A well-timed jump will see Mario grab hold of the owl's legs as he takes

Mario's 3D world is a work of genius. Misjudge a jump onto a wall and instead of plummeting to your doom you will find yourself diving into a lake



The advanced graphic engine enables Mario to exhibit characteristics and movements previously limited by 16bit technology. Here he hangs precariously off a fully anti-aliased platform before falling into the sea









The animation in this end of level section, where Mario has to defeat Bowser, is incredible. Mario grabs Bowser's tail and spins him around before flinging him away

flight, and a free ride (complete with sweeping 3D views of the orchard beneath) to the highest turrets of the castle. The depth and scope of Miyamoto's vision is stunning.

Edge has only three criticisms of the half-complete *Super Mario 64* played at Shoshinkai and all of these are symptomatic of a game far from completion. Although exploring the world is fun in itself, there is a conspicuous lack of enemies and fatal obstacles. Presumably Nintendo wished people to enjoy their first experience of U64 gaming, and deliberately set the challenge level to a minimum. This can be fixed, although whether the inclusion of more baddies will sacrifice either the player's enjoyment of wandering around or the finely-tuned gameplay present in the battle scenes is a matter for time spent gametesting. Time being a luxury Nintendo cannot rely upon.

The few enemies that were on show lacked advanced AI and seemingly required only a one-dimensional attack to finish them off. The boss level with Bowser, for example, looks great – but once it's obvious you have to spin him around by the tail, you feel cheated.

Lastly, the 'roving camera', that provides a view of the game, was glitchy. Often it would pan or zoom inconveniently, leaving players stuck in a difficult situation with only a close-up of Mario's behind to aid them.

Nintendo has a classic on its hands, and Shigeru Miyamoto has once again proved himself as the king of gameplay. **Edge** has faith in Nintendo's abilities to iron out the bugs outlined and provide gameplayers with the revolutionary experience they will need to spend £200 to £250 on a new games machine. If the rest of the launch line-up is brought up to scratch, they will truly be the force to reckon with in 1996.

Nintendo has a classic on its hands, and Shigeru Miyamoto has once again proved himself as the king of gameplay

In this special section, Mario slides down this slope collecting the bonuses. The analog joypad allows for tight degrees of control

Star Fox 64





***Star Fox* intends to distance itself from the original's 'on rails' play**

Developer: **NCL**
Release date: **TBA**

Still in the early stages of development, the Ultra 64 installment of the SNES classic makes efforts to avoid the 'on-rails' movement of the original and instead immerses players in a fully interactive 3D world. Although very little was shown at Shoshinkai, the title appears to have a brilliant cockpit view, some smooth (although poorly textured) scenery and the original cast of cute animals.



U64 *Star Fox* features similar levels to the SNES title – a space section (above) and ground attacks (right)

Body Harvest





The 3D graphics so far have failed to impress

Developer: **DMA Design**
Release date: **April**

One of the hardest games to gauge was DMA Design's action title *Body Harvest*. The basic premise pits the player against invading aliens (yes, again...) who are attempting to steal human bodies for some nefarious purpose. Controlling a surprisingly tiny main character, players switch from vehicle to vehicle, looking to initiate a solid counterstrike. So far weaponry shown has included tanks, choppers, and even hovercraft. The diverse selection of vehicles available to the player could give this one real long-term appeal, especially if the company can make progress with the game's as yet unremarkable aesthetics.





To fight the scorpion-like alien tanks (left), different vehicles must be used

Buggy Boogie



***Buggy Boogie*'s fighting craft are strange bio-mechanical vehicles**

Developer: **Angel Studios**
Release date: **TBA**

Buggy Boogie enables players to design their own cars and drive them into combat with other vehicles. So far, the list of parts looks varied and novel, including winches and projectile weaponry. The graphics seem impressive, with craft looking like hybrids of machinery and biological parts. Although this title may appear to be little more than *Bump and Jump* revisited, *Buggy Boogie* was one of the more impressive demos at Shoshinkai.





By adding weird winches and projectiles to the personalised cars players can gain advantage in combat





Star Wars Shadows of the Empire





Flying a snow speeder in combat over Hoff

Developer: **LucasArts**
Release date: **April**

The most impressive feature of LucasArts' latest *Star Wars* title, their first for the U64, is the ability to manoeuvre within a true 3D world while interacting with enemies from *Star Wars* mythology. There are several different levels offering various styles of play, from piloting snow speeders across Hoth's surface, to blazing through forest landscapes on speeder bikes. Graphics feature beautifully texture-mapped objects and enemies, as well as SGI-rendered special effects. So far, the game looks both realistic and entertaining, and, if the full capabilities of the joypad are used, it will control just as well.



***Shadows* promises to feature all the favourite vehicles, like this AT-AT**





SGI-quality special effects should play a major part in *Star Wars*

Wave Race





Complex algorithms allow for a smooth ride

Developer: **NCL**
Release date: **TBA**

Designed by Mario guru Shigeru Miyamoto, players drive jet boats across a series of water courses. The game features new, real world physics: a detailed system of movement and response algorithms enable the player to jump over waves, cut up other racers and slide realistically over the water.

This title is a perfect showcase for the U64's visual prowess. *Wave Race* displays water as a translucent, rather than reflective, substance, meaning that as players race though the game, they will be able to make out sunken buildings and other objects beneath the waves.



***Wave Race*'s is a similar vehicle to the U64 as *F-Zero* was for Nintendo's SNES**





Mario Kart-R



The graphics, still at an early stage, retain the style of the orginial

Developer: **NCL**
Release date: **TBA**

This U64 version of the SNES classic never deviates far from the old formula, but still improves on enough key points to make it an essential purchase.

As the only game in the launch line-up to take advantage of the U64's high res mode (and the subsequent 32,000 simultaneous colours available), *Mario Kart-R* makes an amazing visual impact. In addition to this graphical face-lift, Miyamoto has also inserted a few new gameplay features. Hills and dips have been included, adding a third dimension to the formerly flat-planed game. There will also be at least one new character – Wario – who will presumably bring along his own bag of dirty tricks to slow down competitors. More important than all of this, though, is the addition of a four-player split screen mode.



***Mario Kart-R*'s four-player link up promises to deliver vicious rivalry**







***Mario Kart-R* runs in hi-res, 32,000-colour mode**

Kirby Bowl 64


The plain checkerboard graphics accentuate the game's undulating floor

Developer: **HAL**
Release date: **TBA**

In many ways HAL's new puzzle/action game, *Kirby Bowl 64*, is similar to arcade classic *Marble Madness*, or *Sumo* on the Macintosh. In four-player mode, each competitor controls a ball around various revolving 3D landscapes, attempting to knock the others out of play. Although this sounds relatively simple, it's actually fairly entertaining action. However, in one-player mode, the game is more akin to a slalom race, which fails to grab the imagination in the same way.

The graphics are basic (using checkerboard patterns similar to *Motor Toon GP*), but movement is smooth. The game also makes full use of the innovative U64 control pad, mixing the best elements of analog and digital control to create unparalleled motion precision.




Kirby Bowl utilises the U64's Gouraud-shading

Blastdozer


Rare's *Blast Dozer* features some spectacular effects

Developer: **Rare**
Release date: **September**

Controlling a sort of hyper-bulldozer, the mission here is to destroy various buildings. Extra cash is given for each target brought down, which can be spent on additions to the basic vehicle. Resistance comes in the form of the local inhabitants, who aren't too pleased over the impending flattening of their homes.

All of the usual graphical trickery is used here, from transparent explosions resembling those found in *Toshinden*, to hardware-driven light sourcing effects. *Blastdozer* promises to be one of the most original and addictive titles to hit the shelves for some time.




Destroying houses earns extra power-ups

Goldeneye 007


Goldeneye 007's intro lovingly recreates the Bond movie titles

Developer: **Rare**
Release date: **September**

Another movie conversion shown off at Shoshinkai was Rare's *Goldeneye 007*. As could be expected from the veteran developers, the title is visually impressive, but looks like it may also deliver in terms of gameplay. *Goldeneye* appears to combine the first-person freedom of *Doom*'s motion interface with the target-style shooting of *Virtua Cop*. According to inside sources, players will control their movement with the U64's digital pad while aiming their weapons using the analog joystick. If all of this works as planned, it will be an important and entertaining step forward for the first-person shooter.




Goldeneye mixes *Virtua Cop* gameplay with elements from *Doom*


Apart from this battle scene, little has been revealed about *Zelda*

Zelda

Developer: **NCL**
Release date: **Late 96**

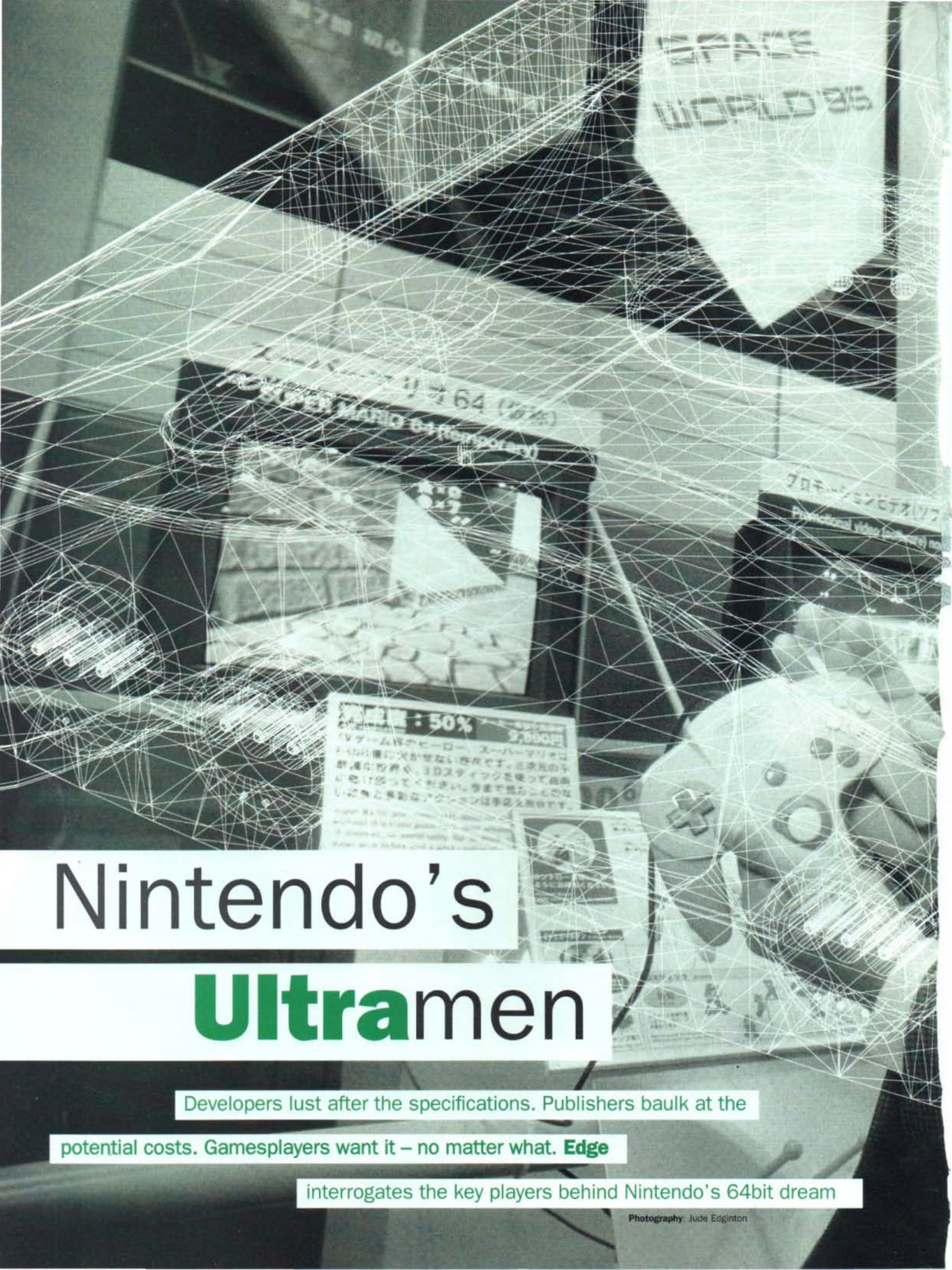
Revealed at the show was news that Nintendo is halting development of a cartridge-based *Zelda* sequel to ready it for 'bulky' drive release next year.

Very little is known about the game at this point. However, it appears that the realtime Link seen at Shoshinkai is likely to end up in action scenes rather than the game itself.


Zelda's release has been delayed to coincide with the MO drive launch




This demonstration, Nintendo assures, runs in realtime



Nintendo's **Ultra**men

Developers lust after the specifications. Publishers baulk at the potential costs. Gamesplayers want it – no matter what. **Edge** interrogates the key players behind Nintendo's 64bit dream

Photography: Jude Edginton

Ultramen

ウルトラメン

エッジミーツジ



Continued next page

Ultramen

From the very beginning industry-insiders have questioned the ability of many of Nintendo's 'Dream Team' partners to produce quality interactive software for home use. Although there was little doubt that the games shown at Shoshinkai were legitimate, the fact that they weren't available to play was a big disappointment – and proof to the cynics that the 'Dream Team' may not be all Nintendo would have you believe: outfits such as Angel Studios and Paradigm make great pre-rendered graphic sequences and flight simulators costing tens of thousands of dollars, but they have never had to squeeze interaction out of a $250 home gamebox before. Their U64 projects may look great, but how will they actually play? Do these teams truly understand and revere interaction, or is it just something that will be added at the last minute? With only three seconds of videotaped, non-interactive 'game footage' on display, one needn't be cynical to work out why these games weren't available for testing.

From a hardware perspective, the fact that some of the Ultra 64's more heralded hardware graphic features (tri-linear mip-mapped interpolation and anti-aliasing) weren't being utilised in some game demos at Shoshinkai raised other doubts about Nintendo's ability to meet its promises. According to some of the more technically-savvy delegates, *Super Mario 64* and a few other titles didn't employ such features. There are three possible explanations: either the features aren't working yet, turning the features on resulted in an unacceptable degree of game slowdown, or (and this seems to be the favourite theory) game designers simply haven't had enough time to get to grips with the technology. Either way, it doesn't bode well for a games system that was originally scheduled for a Christmas 1995 launch.

However, despite these niggles the downbeat mood of delegates gradually gave way to a more healthy and upbeat prognosis of Ultra 64 (or rather, Nintendo[64] as it is badged in Japan) after most had played Nintendo's flagship title. Dave Perry, head of Shiny Entertainment and creator of *Earthworm Jim* typified the mood of those witnessing Ultra 64 for the first time: 'When everyone first saw it running they said, 'Oh okay'. But then, once they had played it, they said 'Hang on, that's really cool.' Sure, some people felt it hadn't lived up to the hype that Nintendo put around. First of all you think 'oh it's just another 3D console and it looks just like the PlayStation'. But, for me, I felt that



it looked like the PlayStation in hi-res, which adds a lot to picture quality. That's incredibly important.'

So can Nintendo capitalise on Ultra 64's power? Perry has little doubt: 'Nintendo is going to kick everyone's butt, certainly in Japan. I asked some friends of mine how much they would spend to own an Ultra 64 right there and then and they said $4,000 of their own money and $10,000 of company money! The fact that they wanted one so bad was a good sign. When it comes to the US it's going to sell like crazy even though the [$90] games are very expensive.'

Perry was also very excited about Ultra 64 as a games creator. 'Obviously the controller is the big special move that they have gone for. It definitely changes things and it's wonderful. It allows you, when



Besides the analog thumb stick, the N64 controller includes other unique features such as a trigger and small memory cards similar to those for the PlayStation. This will negate battery-backed RAM included in cartridges

driving in a racing game for example, to lean into the corners so much more easily than having to keep tapping a button.'

Jez San, Managing Director of Argonaut and creator of *Star Fox*, agrees. 'The joystick is unusual looking but I like the controls. The thumb control feels nice and strong and also sensitive.' He also agrees that despite the lack of games available for hands-on testing, what he saw confirmed Nintendo's claim that Ultra 64 truly offers the performance leap that Nintendo claims. 'Graphic technology-wise it's a step up from the PlayStation and Saturn in that it's got perspective-correct texturing and tri-linear interpolation. Although the *Mario* game used only bi-linear interpolation [a less-powerful mode] it looked quite good. It meant that they could use very small textures and have them zoomed up really big. The PlayStation and Saturn don't have these features.'

San did, however, concede that data storage is a big problem and until Nintendo actually presents software houses with some genuine alternative it could make development difficult. 'It's going to be tough to fit [Ultra 64] games onto 8Mb cartridges because when you start using 3D graphics with a lot of polygons and a lot of texture maps it all adds up – and soon you find that 8Mb isn't enough.'



In Japan, Nintendo will make a range of N64 controllers available in different colours, mimicking its efforts with the Game Boy

Nintendo argues that proprietary decompression technology will ease the memory problem (it claims that while it can't match the 650Mb capacity of a CD, it can compress 16Mb onto a 4Mb, 32Mbit, cartridge). However, as far as most game producers are concerned, the amount of data that Nintendo's cartridges can hold is secondary to the problem of how much the cartridges will cost. A PlayStation or Saturn CD costs less than $10 to manufacture – including license fee. It is estimated that producing an Ultra 64 cartridge will cost at least $30. And with many publishers having suffered tremendous losses after being stuck with large volumes of expensive Super NES and Genesis cartridges after the collapse of the 16bit market, few are eager to return to the bad old days of cartridge manufacturing – especially after gearing up their CD manufacturing business for two years.

So is Ultra 64 the quantum leap in videogame technology that Nintendo promised? Has it the potential to destroy PlayStation and Saturn? Realistically, it's too early to tell. Three main questions remained to be answered: Can Nintendo and its 'Dream Team' of game developers complete enough killer games in time to accompany the hardware's launch? In the



absence of a finalised 'bulky storage' software medium, can Nintendo persuade game developers to return to expensive cartridge publishing? And will the number and breadth of titles available be enough to persuade gamers to abandon the library of great games that, by U64's launch, will be available for PlayStation and Saturn?

So, Ultra 64's unveiling at Shoshinkai posed more questions than it answered. First, everyone knew that it would all come down to Mario in the end. Shigeru Miyamoto's moustachioed plumber was the driving force behind NES and Super NES, and will be for Ultra 64 also. *Super Mario 64* will undoubtedly be a great game but few had anticipated the extent to which Ultra 64 would rely on just this one game. At this stage it's difficult to tell if Mr Yamauchi's refusal to show anything but *Super Mario 64* is testament to the scale of Miyamoto's achievement and the brilliance of Mario's 3D debut, or whether it says more about the lack of anything else to shout about. Only time will tell.





NCL chairman Hiroshi Yamauchi made a forthright speech but its duration claimed the odd casualty (below left)

A chairman on the offensive

Mr Yamauchi's keynote speech centred around the importance of emphasising quality over quantity. Citing videogaming history he urged the games industry to learn from its mistakes, in particular, the development of too many poor-quality games. He reminded his audience of the collapse of the videogame industry in the early eighties attributing this to the fact that 'videogames were not fun.' Of course, Mr Yamauchi's recounting of this videogaming fable sets the scene perfectly for a Nintendo-to-the-rescue climax, complete with gleaming white charger and rescued princess. But Shoshinkai is his show and he can tell the story how he likes. The fact is that there are valuable lessons to be learned from the 1980s, and that few would-be teachers have the track record or experience of Nintendo's chairman.

Mr Yamauchi continued to berate software companies' attitude to producing software, particularly those that have developed numerous titles with little concern for quality: 'They will try to develop as many titles as possible so at least one of them will be a big hit in the market.' His conclusion? 'The users will simply reject these third-rate software titles.'

His point was that unless the gaming industry starts tightening up standards and reducing the number of games produced, then it's heading for a crash that would make the early eighties look like a walk in the park. He's right, of course. What remains questionable is whether Nintendo's entry to an already-overcrowded marketplace will sort out the problem once and for all or merely add to it. And the answer to that question won't be known until next April.

Continued next page

Silicon Graphics designed and engineered the internals of the Ultra 64. The programme, inaugurated in August 1993 and code-named 'Project Reality', is the first time the Californian company has ever had to produce a machine for home use. To successfully develop graphics workstations costing hundreds of thousands of dollars is quite an achievement, but to develop the innards of a box that Nintendo swears will sell for 'less than $250' is a completely different task. How has the dream of bringing Jurassic Park's special effects to the home been sacrificed along the way? **Edge** met with the general manager of SGI's consumer electronic marketing during the Shoshinkai show.



Edge So was it SGI's idea to present this technology to a videogame company, or was SGI approached from outside?

Silicon Graphics

GZ Jim Clark – who was the chairman of Silicon Graphics back then – took this technology and really pursued the idea of working with the leading game manufacturers.

Edge What did SGI and Nintendo agree should be the technology's major features?

GZ We wanted to get the Reality Engine look and the feel, in terms of the quality of the polygons and the pixels, within a high performance machine. There's a lot of things that happen when people start engineering. It's easy to end up with a machine that can either do the graphics features, or has the performance, but the real challenge is creating a machine that does them both well. That way you don't suffer certain optimisations – where your features might work but all of a sudden you get this crummy performance, or you have good performance but low-quality features.

Edge So what else did you offer Nintendo, in terms of SGI's expertise in graphics?

GZ As well as designing the hardware, we supplied the software emulation system. Basically, we had Ultra 64 microcode running on an Onyx Reality Engine back in July 1994, so someone could sit down and start building a game. And that's what Mr Miyamoto did with *Super Mario 64*. He started building the game on the Onyx Reality Engine with Nintendo Ultra 64 software emulation system over a year ago.

Edge So how does Ultra 64 compare, in terms of power, to the original SGI Reality Engine from which it was derived?

GZ From a consumer's perspective, I don't think gamers will be able to tell the difference. If you ask someone on the Reality Engine team whether it's the same thing, they'll say, 'Of course not! The reality engine does blah blah blah.'

But since an NTSC TV screen has only a quarter of the pixels compared to a high-end computer monitor, Ultra 64 has an equivalent amount of performance. So, although in actual fact Ultra 64 has probably only a quarter of Reality Engine's performance (we haven't actually done direct competitive bench tests), we only have a quarter of the screen to fill. So, in terms of polygon count and pixel count, Ultra 64 has the same performance as Reality Engine. Ten years ago the rendering performance of the Ultra 64 would have only been possible on a $14 million flight simulator.

Edge What level of secrecy did you have to implement internally within SGI?

GZ There was an unbelievable amount of secrecy. It was challenging because at SGI our culture is a really open one and engineering groups from all over talk to other groups to see what everyone is doing. Because we are working with Nintendo in this area and because there is such potential for competition to, like, see what was going on, we had to deliberately cut down the level of communication internally. No-one knew where the lab was internally – we had a whole lab full of Ultra 64 stuff and 70 people working on the CPU alone – there was a big *Donkey Kong Country* poster on the window so no-one could see in!

Edge What about 3DO's M2? Until Matsushita makes an official announcement about its plans for the M2 technology, everything is pure conjecture. But if initial specs are to be believed, M2 is of comparable performance, if not greater, than Ultra 64. Do you feel M2 is a threat?

GZ I can tell you a couple things. One is that we receive a constant, steady rate of resumes from the 3DO M2 team which tells me that things probably aren't so great over there. The second thing is that, whereas they might have the right specs on paper, I don't believe they're going to hit them. This is based on conversations I've had with people who worked on that team.

Edge Over the coming years as Ultra 64's battle with PlayStation, Saturn and maybe M2 is played out, which of its strengths and features will prove itself to be Ultra 64's big trump card?

GZ My gut feeling is that Ultra 64's competitive advantage will be the custom graphic features. I think gamers will really react to the mix we have of polygon rate and pixel fill rate, with high-quality pixels. So I think we got the mix right. And my gut feeling is that Sony probably should have got higher-quality pixels. It's similar to engineering a car, which is getting the right

mix of chassis design, engine, transmission, and also the driver's interface, which is the cockpit. It's just a question of getting the right mix.

Edge Are you surprised that Nintendo are managing to keep the price of the Ultra 64 competitive with other 32bit systems?

GZ What Nintendo said here at Shoshinkai is that they'll definitely be able to bring it to market at or under $250. But the important thing to remember is that they don't have to pay for the CD-ROM mechanism [Ultra 64 doesn't have one] or RAM [for the data to be loaded into].

The biggest sales of videogame systems occur between $100 and $150 in the US – that's the impulse-buying range. My belief is that it'll be easier for Nintendo to get down into that range by continuously shrinking the chip – which they did with Super NES and NES before – than it will be for Sony or Sega, because you can't shrink a CD-ROM mechanism. That's where I think Nintendo will accelerate their penetration over the next two or three years.

Edge The PlayStation is criticised for restricting developers to a fairly rigid Operating System. At the other extreme, developing for the Saturn is often described as confusing and unnecessarily complicated. How are the initial developers reacting to Ultra 64?

GZ We provide *Alias* and *MultiGen* tools that are used to create 3D models and texture maps, and people can use other tools as well if they want. There's a full set of converters available that convert to the Ultra 64 data formats, to provide all the low-level compilation and linkage routines. We don't supply an Operating System, because an OS is kind of deadly in a videogame system, since it chews up a lot of performance. Instead, we supply a very low-level microcode environment that allows developers to access the features as they like.

Edge Nintendo claims CD-ROMs are unsuitable for games. But data loaded from a CD behaves just like cartridge ROM.

GZ I agree. The problem is, however, that you have to have enough RAM...

Edge Which is expensive...

GZ I think that's the problem. If you don't have enough RAM, the issue you start getting into is a very complex virtual paging system from CD-ROM into memory. When you have a small amount of memory, the low level OS you need to do virtual paging can get kind of complex.

Edge And Nintendo doesn't feel it can afford to include enough RAM in Ultra 64 to avoid these problems?

GZ That's correct. Interestingly, the cost curve on RAM is pretty flat for the next three or four years. Demand is going to meet supply, and – from what I hear – the cost of RAM is actually going to go up. In the future I think there are going to be three staple requirements in the world: bread, water and RAM [smiles].

Edge Do you think the games shown at Shoshinkai gave a fair representation of Ultra 64's power?

GZ That's difficult to answer because I don't know how much better games produced in the future will be. Looking back historically, we see that three or four years into a system's life, people are producing stuff no-one thought was possible. It's all down to the ingenuity of the game programmers who know how to take advantage of every electron in the box.

Edge It did look great, but it wasn't utilising all of the graphic features we talked about. Why was that?

GZ The textures were bilinearly interpolated, they weren't trilinearly interpolated – because mip-mapping wasn't turned on in that demo. And anti-aliasing wasn't turned on. I don't know why, I think they just wanted to have a stable demo to show people. But these features definitely work, because we have demos here with that stuff running fine. I think people completed the non-anti-aliasing, non-mip-mapping versions first, and so they chose to show these, which they knew would run okay. Also, the problem with mip-mapping is that you have to generate multiple levels of texture maps. There's a little bit extra work to make sure you generate the correct levels. You can always make those extra levels look better if you spend more time on them – and presumably the developers of the games on show didn't have that time.

Edge None of the third party games were available for hands-on testing, and even the stuff shown on videotape didn't look that great. How do you account for that?

GZ I think that reflects the fact that developers really need more time on the hardware to take advantage of it. Some of the stuff on the videotape had really been in development for only a few months.

Edge How do you think the first-time game developers have done with their Ultra 64 projects?

GZ It seems that different developers get up to speed on the machine in varying time frames. There are some people that came purely from the world of 2D games who knew how to make stuff look great in 3D. And there's other people that had tons of experience in 3D, but their stuff didn't look that good. I think that the people who have experience in building good games, versus really good 3D demos, can get up to speed really quickly, because they know what they're aiming for.

Edge Were you surprised by any of the titles you saw at the show?

GZ Yeah actually, I had never seen a couple of the titles before the show. I'd seen *Super Mario* stuff being done over the last four months – they sent us binaries just to keep the engineering team excited – but I'd never seen *Zelda* before. I asked Takeda-san [general manager of Nintendo's R&D3 in charge of the N64] if the footage shown had actually come directly from the box and he said yes. It was rendered in realtime which was really unbelievable.

We receive a constant, steady rate of CVs from the M2 team which tells me things probably aren't going so great over there

Edge So what's next for SGI after finishing the Ultra 64 project?

GZ I think we're just continuing to work with Nintendo to get the system into manufacturing and then fine-tuning that process. With chip development there's always the quest to get higher and higher yield. We've always got to try and find ways to not only develop new stuff, but ways to make the existing stuff cheaper and more streamlined. That should keep us busy for the moment.

Continued next page

Shigeru Miyamoto

Shigeru Miyamoto is exhausted. He has just spent countless late nights preparing for the debut of Nintendo's new games machine, and he has been plagued by TV crews and journalists all day long at the gigantic Makuhari Messe exhibition centre one hour from central Tokyo.

As the most revered game creator of all time and eminent catalyst in the development of key Ultra 64 titles he is arguably one of the most instrumental figures in the evolution of the Ultra 64. Shigeru Miyamoto's role in the console's development process has been one of quality assurance on the software side. As well as acting as development director on the first wave of internal-developed N64 projects, Miyamoto-san has also been overseeing the work of companies such as Paradigm Simulation and Angel Studios in the States. Having so many areas of interest that constantly demand his attention means he is always under pressure. **Edge** caught up with him at a cocktail party reception organised by Nintendo Of America directly after the Shoshinkai exhibition.



The proposed 'bulky drive' add-on is planned for release at the same time as Miyamoto's *Zelda 64* in late 96 (realtime demo, above)

Edge Personally speaking, what was the most exciting thing for you today?

SM It must have been all the interviews (laughs)... I can't really single out one thing but I suppose I'm happy that such an important day went well. I was very concerned over what everyone would think about there only being one playable game at the show instead of the ten we promised. Basically, we made a decision at

Continued

the last minute to give people the chance to play one game for a long time instead of having lots of different games that people would have only had a short time on. I believe everybody at least had a chance of playing the new *Mario*.

Having so many areas of interest that constantly demand his attention means Mr Miyamoto is always under pressure

Edge Do you think the titles shown today are a fair representation of Nintendo64's abilities?
SM I think only 50% of the machine's full capacity was revealed today. More great things can be done but at least we could show what Nintendo64 can do.

Edge Which of the games shown are you personally involved with?
SM As you have seen, we have only shown Nintendo-developed games and games that are essentially products of our 'second parties'. When it comes to Nintendo's games such as *Super Mario 64*, *Kirby Bowl*, *Wave Race*, *Zelda*, *Star Fox* and *Mario Kart*, I'm involved in their development 100%. As for games such as Paradigm Simulation's *Pilotwings* and Angel Studios' *Buggie Boogie*, my involvement has been on a lesser scale.







Pure Miyamoto magic from top, clockwise: *Mario Kart-R* is currently just 20% complete and runs in hi-res. *Wave Race*, while lacking in over-the-shoulder appeal at this early stage, should hopefully fill the void that has been *F-Zero 2*. *Super Mario 64* is, of course a work of genius...

Edge Is this the most number of games you've ever had to oversee?
SM Not really. I've always taken charge of about ten games, so this situation isn't that different.

Edge We've heard in order to meet the April launch Nintendo64 game code must be completed by at least February. Are you going to have enough time?
SM Well, there are some administrative things we can do to ensure that it doesn't have to be quite as early as February. But, yes, all I can say is that I'm pretty busy right now! In the case of *Super Mario 64*, I am actually doing the job of director rather

Continued next page

Ultramen

Continued

than supervising everything as producer. So, while acting as producer for new 16bit games, I'm also doing the job of director on *Super Mario 64*. Basically, the thing I need most at the moment is time – I'm very worried about time!

Edge When exactly did work start on the new *Mario* game?

SM *Super Mario 64* was the first game we started, and we began work about one and a half years ago. Actually we started working on an experimental *Super Mario 64* system almost five years ago based around the Super FX chip. Unfortunately though, this didn't come to fruition so it's only been about eighteen months since we put the *Mario* team on the project and started using the Onyx development workstations. It's possibly the shortest development schedule yet for a *Super Mario* game.

Edge It seems some of the software shown today was not using all of the Nintendo64 features, for example the mip-mapping which we heard was turned off in the *Mario* game...

SM If I can just talk about the *Mario* game, I think if you carefully watch every little thing in the game you can see some of these techniques being used, but concerning the other games, some developers are not yet using such effects. Actually, these technologies that are hyped in the specifications, are something that you can incorporate at the very last moment of the development schedule.

Edge *Yoshi's Island* is the pinnacle of your work on 16bit with the *Mario* series. Do you feel that, graphics aside, this is a better game, than *Super Mario 64*?

SM I think *Yoshi's Island* is a game that emphasises the fun that can be had in 16bit games. But there are always limitations in making something intensified. As a creator I wanted to make something new and to widen the experience as much as possible. I am not talking only about adding a 3D aspect, but I am talking about really improving the gameplay. It is this new dimension of gameplay I want to include in *Super Mario 64*.

Edge With the exception of *Super Mario Kart*, it is the first time Mario will be appearing in a 3D world. How much work and thought went into how the 3D world should look? Should it be similar to the 8bit and 16bit worlds or should it be different?



Nintendo's game guru has a passion for creating original videogames. Without doubt, he is the secret behind Nintendo's success

SM It's very difficult to compare between the existing *Super Mario* games and *Super Mario 64*. We must consider them as two different kinds of games. Personally, I wanted to make a game that looks like a 3D interactive cartoon. I wanted to create a small garden where Mario can meet realtime 3D characters and the player would be able to move the character with the controller, but like in a real cartoon.

Edge In terms of gameplay, will players with experience of previous *Mario* games have an advantage over *Mario* novices?

SM Frankly speaking, I wanted to make a game that every kind of player could play so there would be no advantage for players with experience. However, I think those familiar with traditional digital controls may have some trouble adjusting to the new analogue control stick, but of course, once they do they'll find it a much more rewarding experience. I expect that first-time *Mario* players will take to the analog joystick quicker than those used to traditional controls.



We've given a lot of thought to the controller... developers now have the opportunity to create a whole new entertainment field

Edge Just how revolutionary do you think this game controller is? Is it going to make a big change to the way games are played?

SM From a creative point of view, in the past there have been lots of games that could not have been developed because of a lack of analog control. In fact, the consumer has often had to buy custom controllers as accessories, so companies have been afraid of supporting such peripherals. We've given a lot of thought to this controller and developers now have the opportunity to create a whole new entertainment field.

Edge It has taken around 15 to 20 years for perfect 2D gameplay to be realised, and around ten years to perfect *Mario's* gameplay in 2D as we've seen in *Yoshi's Island*. How long do you think it will take to reach that level of perfection in a true 3D world?



SM It has already taken ten years to arrive to the present level of 3D with the personal computer, and we are still not doing it well. Because of the large number of pseudo 3D games we've seen, I don't think we're that far from reaching the same level of gameplay depth in a 3D world such as *Super Mario 64*. In fact we've already reached a high level of gameplay in the version shown here today and closer to the launch you'll see this aspect of the game shine through even more.



Edge Of all the Ultra 64 games you're currently involved with, which one are you most excited about?

SM Because I'm the director of *Super Mario 64* this is obviously the project I'm involved with the most and consequently the one I'm most excited about. I'm also interested in the outcome of *Pilotwings 64* and I've got high hopes for *Wave Race* which I think could be really exciting.

Edge This seems like an attempt to reincarnate *F-Zero* on Nintendo64...

SM Seemingly, yes, you can see the design is similar to *F-Zero* but I want to introduce new kinds of vehicles such as waterbikes and also a very undulating terrain with lots of jumps.

Edge Mario is perhaps the oldest game character. Do you think he is still popular or do you think he needs to evolve and change?

SM Well, do you want me make a completely new character? (laughs)

Edge Alright then, are you excited about the potential of a 64bit *Zelda*?

SM Yes very much. Personally, I think *Zelda* should have been in 3D since the beginning. And although I shouldn't talk about it right now, I'm very interested in the potential of the writable storage device which should give the players more game time and even greater levels of gameplay depth.

Edge What do you think of games on the Saturn and Playstation?

SM Frankly, some of the games are really good. But when I say good I mean they are usually just good conversions of arcade games. These developers are simply following a project set by hardware companies. To my eyes, much of the other software looks poor and many of these games seem experimental.



Edge Another aspect of Nintendo64 that a lot of people are talking about is the potential for networked games. Does this concept interest you?

SM Everybody is excited about the future and there are many different ways for us to explore. Networking is the kind of thing we would like to work on and the Nintendo64 has some special extension ports created for this possibility. However, I think it would be better to talk about it when we have sold three million Nintendo64 units!

Edge The only games we saw today that made use of the four joypad inputs were *Kirby Bowl 64* and *Mario Kart-R*. Do you feel that the four-player option is something that will be used a lot?

SM We've decided to push this aspect because for the first time we have a machine with a fast enough CPU to handle four independent screens at speed. That's why we decided to include four joypad ports on the machine itself.

Edge We've noticed you've stopped smoking. Is this because you simply don't have the time anymore?!

SM No, it's because I have to work with Americans! (laughs)

Edge So what vices have you taken up instead?

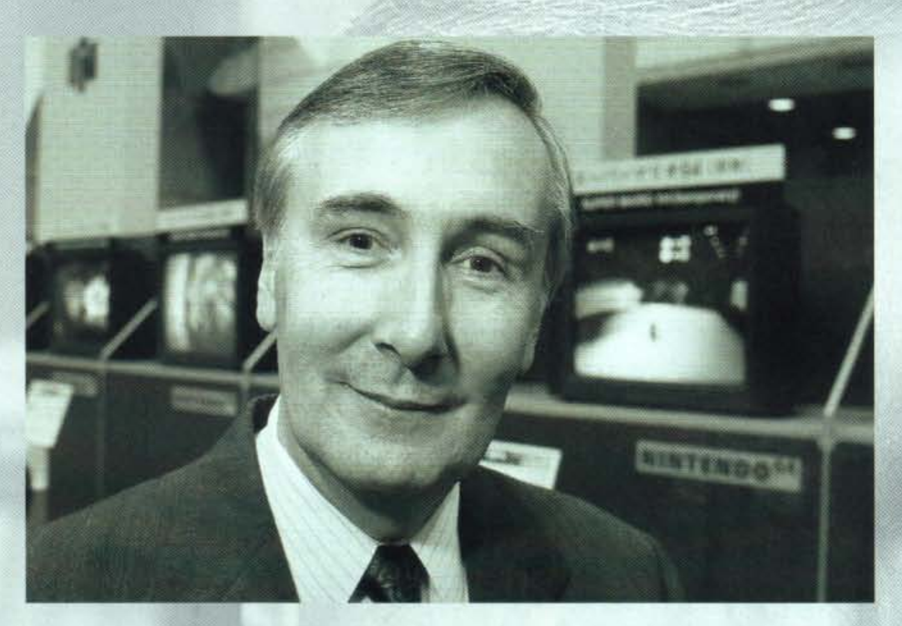
SM I've been eating lots of sweets which explains why I've acquired such an enormous... (points to stomach)!

As the interview concluded and Mr Miyamoto prepared to make his way to his hotel room for a well deserved nap, he asked **Edge** for its opinion of the show. After expressing disappointment at only being able to play two games at the event, Miyamoto-san jokingly turned to his colleague and quipped in Japanese, 'Let's show them the rest of the games in secret.' After a curt look from his public relations manager and some words of warning he let slip (again in Japanese) that he had five playable games in his hotel room, before chuckling to himself and wandering off. Needless to say, the invitation to bring up a six pack wasn't extended...

Continued next page

Ultramen

Nintendo Of America's chairman has good reason to be happy. After a successful first day at the Makuhari Messe exhibition hall, and given the immense significance of the Shoshinkai show and what was shown, it's proving a rewarding experience for him and an encouraging indication of what North America can expect next April. Despite a catalogue of unfulfilled promises and delays, Nintendo has finally done it as far as Lincoln is concerned. Edge asked him exactly what the launch means to Nintendo and what lies immediately ahead.



Howard Lincoln

Edge So, it seems like half the world is here to see the Nintendo64...

HL It's been an outstanding show and the reaction from the trade and the media in Japan has been exceptional. I think we've accomplished all the objectives we had, which was to show the technology, show what could be done with the hardware chipset, and now I think we can move forward very confidently knowing we've got a winner in the hardware. But we've also got to get three very strong games for the Japanese market and the launch.

Edge The current plan is for a launch in late April in Japan and for the US launch to roughly coincide with that. Did you ever hope that Japan would get a headstart so that sales in the domestic market could be used as a yardstick?

HL Yes, we certainly anticipated that that would be the case. And as Mr Yamauchi indicated, he decided to delay in Japan and not introduce the product before the end of the fiscal year, which is March 31st, just to give the people like Mr Miyamoto a little bit of extra time. I think that will prove to be a very good decision – you can't rush creativity. It just doesn't work.

Edge Do you think this attitude is unique to Nintendo?

HL I think it is unique in the sense that Nintendo has successfully launched three platforms in the last ten years around the world, and they know without any question that you've got to have the finest games possible when you launch a new platform.

Edge Now, Nintendo has been losing market share for the last five or six years, do you think that the Ultra 64 will see that problem receding?

HL Well, Nintendo's share in the 16bit market is looking better every month and that's simply because we have not abandoned the category that has a 16-18 million installed base, so we're doing quite well in the 16bit market. I think the decision to wait and not introduce Ultra 64 in the back half of 1995 has now proven to be a good one. We said we had quality software, which we do. We indicated we were raising the quality bar in ourselves, which we have. I'm not concerned about the so-called headstart Sony and Sega have had, because I think Nintendo is a very, very strong franchise in the United States. We have all the infrastructure in place, the marketing, sales and distribution, and we have consumers that associate Nintendo's name with very good games.

Edge Of course, the $64,000 dollar question has to be – will the US and European launches be kept to April 1996? What are the odds?

HL I don't like to put odds on something like this because it can be misinterpreted. At this time our plan is to launch Nintendo Ultra 64 both in the US and Europe at the end of April. I'm not aware of anything that will change this plan at this point.

Edge Is Nintendo taking Europe more



The American styling of Nintendo's 'revolutionary' controller matches the Ultra 64's body colour and is a far call from Nintendo's usual bright, primary colours

seriously now? Surely it's about time the UK had a wholly-owned subsidiary?

HL I think Nintendo has always taken Europe seriously but it has had some difficulties with the distribution of hardware and software. We've done very well in Germany and France and even without a wholly-owned subsidiary we've done very well, for example, in Scandinavia. The UK has been a difficult market for Nintendo, no question about it. I've spent quite a bit of time in the UK this year and I'm quite hopeful that in THE we've found the people that can do it.

Edge With specific regard to the show there have been a few surprises, particularly the absence of the flagship U64 games, *Cruis'n USA* and *Killer Instinct*. Why aren't they here?

HL True, both of those games are titles we said we would launch with, but gamers shouldn't be concerned that they're not here. Both games are in development and will be launched in 1996. *Killer Instinct*, specifically, is probably not a game that we will launch initially in Japan, so that's the reason for that. Regarding *Cruis'n USA*, Mr Yamauchi made the final decision on what games would be here at the show and that wasn't one of them. We got through a conference today with the people who are developing *Cruis'n USA*, however, and it's looking fine, so I don't think there will be a problem.

Edge What's the plan with developers now? You've this dream team, you've got some developers in Japan, and you seem to have more and more people coming on board. What's going to happen next?

HL Within the very near feature, I'd say in the next 30 to 60 days, NCL will announce a developer program and third party publisher program. We are working on both of those programs for the States and Europe and will not finalise anything until we see what NCL does.

Edge Why have companies such as Capcom, Konami and Namco, which are traditionally core Japanese licensees in the Nintendo business, not been embodied in the dream team?

HL The dream team has been confined to US and European-based third party publishers. The agreements that we have with various companies like Virgin, Acclaim and Electronic Arts are all with respect to the North American market. That



The US machine is expected to hit stores at the end of April 1996 for less than $250. Of course, it's possible that the system will be delayed until the traditional fourth quarter sales period...

program, for whatever reason, was not something that Mr Yamauchi shied from in the Japanese market but gave me the green light for the US market. We at Nintendo Of America are quite pleased with what we've done. We've got games at various stages of development due to come on line in 96 and, in some cases, in 97, and they will be exclusive to the Nintendo Ultra 64 platform.

I think the decision to wait and not introduce Ultra 64 in the back half of 1995 has now proven to be a good one

Edge One of the biggest concerns with third parties we've spoken to is that Nintendo will continue to have the upper hand in so much as it will be able to put out high-memory games such as *Mario 64* for the same price as what is essentially the cost of a 16Mbit games now. How are you going to convince third parties that there's a viable business here?

HL I think the short and sweet answer is that any third party that has ever associated itself with Nintendo since the very beginning and made a good game, has made a great deal of money. I'm confident this will continue in the future. There's always going to be grousing by third party publishers about the publishing programs of Sega, Sony and Nintendo – I think that's to be expected. But I'm confident third party publishers will be very anxious to publish on Ultra 64. Price-wise, I fully expect third-party software for Ultra 64 will come in at about the same price as 16bit software is right now – in the $60-70 range. The issue is the margins. We haven't come up with any pricing for Ultra 64 publishing programs yet so the grousing is somewhat premature.

Edge What games in development have impressed you the most so far?

HL *SM64* shows what can be done in a 3D environment. Other that that I have been very impressed with Paradigm's *Pilotwings 64* and also the LucasArts games – I think they've done an extremely good job on *Star Wars*. And some of the Rare games are looking good, too.

Edge So does this mean you'll have one sitting under your TV at home soon?

HL I think it'll be sooner than when I got the SNES in, because I'm finding that with this new controller I'm actually able to play the games! I've got to tell you I was really enjoying myself today playing the new Mario game. It was fantastic.

Continued next page

Paradigm Simulation

Of all Ultra 64's selling points, perhaps the most telling will be the catalogue of Nintendo-specific software available on release. *Pilotwings 64*, a game with its roots firmly buried in the SNES era but with ambitions to raise gameplay and graphics to a level only possible with state-of-the-art hardware, is one title carrying Nintendo's hopes with it. Paradigm Simulation, responsible for *Pilotwings 64*, are a five-year-old US company who's prime business has been in the high-end simulation market. Their core function is designing flight sims, driving simulators, and marine simulators, mainly for training applications running on high-end image generators and workstations. While the *Pilotwings* project is their first venture into the home market, they have enjoyed a long history with SGI

Edge spoke to VP Dave Gatchell.

Edge Tell us about your involvement with Nintendo in the Ultra 64 project.

DG Our involvement really came about through SGI, who mentioned us to Nintendo during discussions over the hardware. We were contacted by Nintendo in April 94 to see if we would be interested and, of course, yes, we wanted to pursue that. By late July/early August we started to work with the emulator and got disclosure on the hardware. We were formally under contract by November 94, even though we had already been working on the system for several months.

Edge Had you been specifically approached with *Pilotwings* in mind?

DG No, the *Pilotwings* project hadn't been decided at that point – even by the time we'd started working on the Onyx.

Edge Does the analog controller help you with the design of *Pilotwings 64*?

DG Coming from a simulation background we try to use physics-based motion models. We adapt the models to enhance gameplay, obviously, but our games do have a strong physics background – just like flight simulators have six degrees of freedom, we see that can be best-controlled with the joystick. Which means how the analog controller adapts to heading, pitch, roll...

Edge So what did you use before you were given the Ultra 64 controller?

DG Originally we had a SNES controller because we figured the machine would be using a similar device.

Edge So the analog joystick just controls flight motion?

DG No, we also alter the camera independent of the actual flying experience, using the other buttons.

Edge Is that actually an important part of the gameplay?

DG You can use a different view to find







Paradigm is a specialist in military sims (above). The company's egg-head Onyx demo character (top) – no wonder NCL designed the characters in *Pilotwings 64*...

out where you're supposed to be going, where the pass might lead you; maybe see where bonus levels or bonus objects; it's like being able to turn your head and say, 'Oh, what's that area down there?' So yes, I think camera control is a very important part of the game – the rocket pack in particular comes to mind. When you're trying to land, or collect secret bonuses, or fly through the rings and so on, you really need to use learned skill in manipulating the camera, either by moving it or rolling it, to make it through the course.

Edge Did you spend much time looking at the original game?

DG Definitely. We were instructed to study it very seriously so we spent quite a bit of time with it.

Edge And what do you think of it?

DG Although it's a very linear, task-based game, it's really enjoyable, and it was a decent game for the point in time when it was published.

Edge So has this linear, task-based approach changed for *PilotWings 64*?

DG Somewhat. There are still very much courses and tasks that you have to complete in order to get to the next level, but what's different from the first game – which was very much a track with a particular path that had to be followed – is that we've developed a very large database with three large areas that you can go off and explore – you can go off and find hidden levels and items or whatever. The course you find may not be the one needed to actually complete that level, but there are a lot of other things to go find and go explore, which I think is quite different.

Edge Does the weather affect flight?

DG Yes, the wind effects are very big in the game, especially with the hang glider – we have a lot of localised weather and air patterns that you have to keep hitting and reaching to travel to some of the areas. They're very realistic, too. We have local winds and thermals, too. Depending on where you are in the database, we try to put them where they'd be in real life. So you get wind coming off the ocean and different things of that nature.

Edge What kind of crafts will be featured in the final game?

DG There are three vehicle types, and one other type of vehicle/character that we're not disclosing yet. The three types that we've exhibited are the gyrocopter, rocket pack and hang glider.

The wind effects are very big in the game, especially with the hang glider – you have a lot of local weather patterns to hit

Edge One of the great things about the original was its use of sound. Is that something you're taking seriously in the sequel?

DG We do have a music track now, but there are also lots of environmental sounds that change. For example, there are different kinds of wind effects depending on what's around you.

Edge How did it feel to take what was one of NCL's strongest ever games and sit down to write a sequel?

Forgive the poor quality of the above shot – *Pilotwings 64* features beautifully crisp 3D

DG I can see some advantages to it: we know our game has a ready-made audience of people who enjoyed the first game. Being new to game development – at least to consoles – it might have been a little different for us because we had lots of ideas we wanted to work with, but Nintendo wants us to stick to a formula that is very recognisable as a sequel. Because Nintendo is the guiding hand we know we're not going to stray too far from the path they want us to take.

Edge How hands-on is Shigeru Miyamoto with the project?

DG He's directed the game but we have our direct contact – a gentleman by the name of Mr. Wada – who we work with directly on the game. We've met Miyamoto and he's been overseeing the game but it's mainly through Wada-san. Miyamoto's involved with a number of other projects so we haven't spent that much direct time with him.

Edge But does he come over, play it and say, 'Well, I want such-and-such...'?

DG Well, he hasn't come over to Dallas to play it. As far as I understand he's playing it at NCL, because we're delivering to them all the time and getting constant feedback.

Edge Given that the original game ran on an 8Mbit cartridge, how will a 64Mbit cart restrict you?

DG We were concerned about resources, particularly memory such as ROM and DRAM. But after implementation we found it wasn't as big a concern as we had thought. We're used to dealing with high end SGIs with 64Mb of DRAM, and even 4Mb just for storing textures, but once we scaled down the textures for the resolution we're using [320x240] they

Continued next page

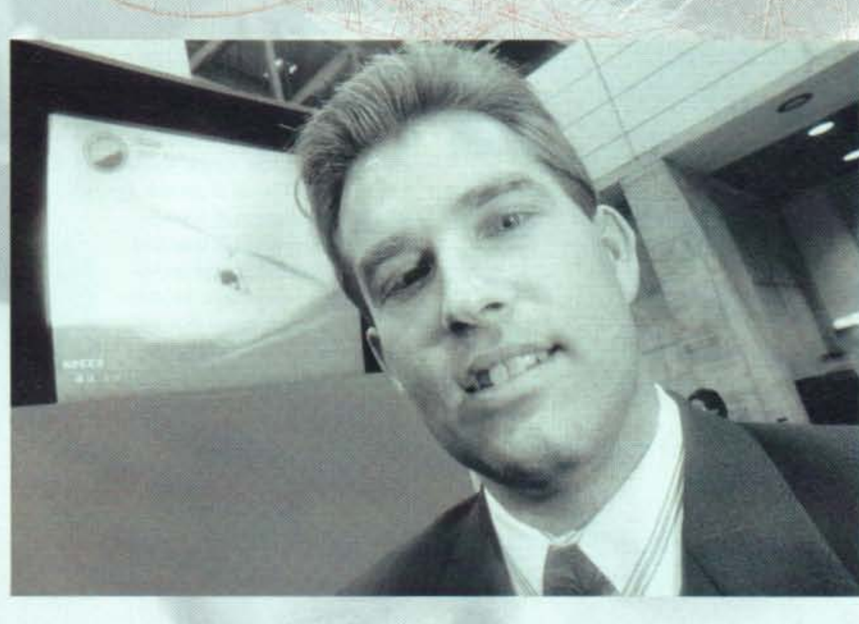
Ultramen

weren't as big a consumer of memory as we had anticipated.

Edge How close do you think *Pilotwings* will get to the PC school of flight sims, in terms of dynamics and realistic handling?
DG There are definitely some simulation aspects we're trying to capture, such as the genuine feeling of flying – that's important – such as when you catch a thermal and you get that feeling of lift. In the controls we really tried to strike a balance between using technically accurate hang glider flight models and a feel which gamesplayers can relate to. Besides, just the craft that you're using differs wildly from most simulations – there are very few rocket pack sims for example.

Edge What do you see as being an average frame rate in the finished game?
DG Our target frame rate for this game is 20fps. It's the same when we're looking at any software, be it games or simulation: we have to determine the capability of the box, what we perceive that to be, what is our budget for polys based on what our application is, etc. For this particular game we're going for 20Hz, that is 20 frames per second.

Edge So are you making a trade-off: losing frame rate for detail?
DG Definitely. We were concerned at Shoshinkai because the tape shown was three or four weeks old and the game is quite a bit more advanced than that. Plus, there are a lot of speed issues that haven't been addressed yet – we haven't really started tapping the machine's performance, and that's one of the things we can quite easily rectify at a late stage. I think you'll agree, though, that the surrounding game scenery is more complex in *Pilotwings* than in some of the others shown.



Edge The game's characters are very reminiscent of those in Star Fox – presumably these were Nintendo's work?
DG Yes, that's right – they just turned up one day and we immediately started to implement them in the game. There's no story built around the characters as such, but they are very visible in the game and possess different characteristics. For example, the strong burly guy obviously requires a lot more lift but can also turn the hang glider faster – it's things like this that noticeably affect the flight model.

Edge So when's the deadline?
DG We plan to roll out with the hardware in April and we're scheduled for completion by March 1st.



These shots were grabbed from Nintendo's press video and, while extremely blurry, give an indication of the quality of the visuals in Paradigm's first N64 title. Besides four different crafts, the game will feature action replays and a game save mode that will use the system's unique memory cards

Ridge Racer Revolution



Format:	PlayStation
Publisher:	Namco
Developer:	In-house
Price:	¥5800 (£40)
Release:	Out now (Jap)





Although *Revolution* demonstrates some excellent 3D handling routines, there's little here to distinguish the game from the original



The three tracks in *Revolution* are in fact variations on the same route, as in *Ridge Racer*

Hardware doesn't sell hardware. Software sells hardware. If ever there was a game to give credence to this, the first law of the videogame industry, it was *Ridge Racer*. When, in December of last year, Sony finally rolled out the PlayStation in Japan, it wasn't just the cute design that ignited the gaming public's interest, or the glamourous specs (look at the Jaguar) or the promises of a thousand third-party developers. It was *Ridge Racer*. Not merely a superlative game in its own right, but immediate and definitive proof that fast, detailed, thrilling 3D action was available in the home as well as the arcade. And at a fraction of the cost. The next generation was off to a flying start.

Now, a year later, on the very anniversary of *Ridge Racer*'s release, Namco have delivered the enticingly-titled *Ridge Racer Revolution*, a PlayStation-only sequel, and expectations could not be higher. Namco have had a whole year to address the desires and complaints of *Ridge Racer* fans the world over, to overhaul the graphics, to set the benchmark once more in driving games and in home console performance. What could possibly go wrong?

Under the bonnet, initial impressions of *Ridge Racer Revolution* are encouraging indeed, with a host of new features and options. After loading up with a spot of *Galaga '88*, players are offered, as before, three variations on the opening track but now with three selectable game modes: Race, Time Trial and Free Run, the last of which being a particularly welcome addition permitting you to familiarise yourself with the track entirely unopposed and with unlimited laps. Car selection remains largely unchanged, the




From the very outset *Ridge Racer Revolution* looks all too similar to the original. The camera pans over the grid of revving cars (left), the countdown begins and the race commences. Connoisseurs of the first game should find no problems completing these courses, even if the graphics are new

trusty quartet from the first game being available at the outset with more exotic vehicles awaiting those man enough to take on the CPU in the Time Trials (or extort the appropriate cheats from Namco staff).

Unsurprisingly, the game structure is as graven upon the tablets of the game-gods. Win each faster, longer, more competitive variation of the default track to progress to new and exciting courses (one hopes). In a pleasing innovation, however, the rewards are also retrogressive. By moving up a class you retain access to your new speed category. Thus you can return to race on the Novice track at Expert speed levels with the competition suitably stiffened. So far so good.

It's from the moment the haltingly-animated motorsport babe totters across the screen to herald the beginning of the race that the sinking feeling begins. Just why is she so badly animated? Still. After all this time. An ironic nod to the limitations of the first game? Or just good old-fashioned complacency? The answer is soon apparent. With the obvious exception of track layout, *Ridge Racer Revolution* is virtually indistinguishable from its parent. All the virtues and all the failings lovingly and lazily preserved.

Still present, fortunately, is the seat-of-the-pants speed, the convincing handling of the cars, and the exacting, deviously designed chicanery. But retained also is the sparse, almost disinfected scenery, the drab *Outrun*-ish palette, the twitchy animation on the cars, and the glitchy seaming on the polygons. Improvements are few and negligible. The clipping's better, with little in the way of 'pop-up', the rear-view mirror adds a further dash of authenticity, the cars sport a marginally more detailed livery, and there are some pleasing incidentals: cheering crowds (al la *Wipeout*), some low-flying light aircraft buzzing about, and one, just one, small spinning roadside sign. Frankly, if *Revolution*'s visuals were any more antiquated it would deserve a place in Namco's memory lane tear-jerker also reviewed in these very pages.

Of course, all this graphical disappointment would be mitigated by sufficiently deep and varied gameplay. But it is on this score that

Continued next page







There's something all too familiar about *Revolution*'s graphics. Beaches and skyscrapers are straight from the original while the token inclusions of a new bridge (far right) and some attractive sunset backdrops do little to make this more than a *Ridge Racer Remix*. *Sega Rally*, with its off-road mayhem and exhilarating driving sensation, wins hands down, even though *Revolution*'s 3D engine is arguably superior and can handle more cars

testscreen





***Revolution*'s most impressive feature is the rear view mirror, which provides extra information without any loss of speed. Some may consider this purely cosmetic, but if used effectively it adds new elements of gameplay. The player's can, for example, watch and block any passing opponents**



Replay mode demonstrates *Revolution*'s polygon handling skills. This distant action shot is incredible

Namco have sinned most grievously. They can't really expect the average games player, having triumphed over the first course, to be filled with anything but anger and frustration at being presented merely with the same tracks in reverse as a prize, and no amount of lap-record/time-trial embellishment is going to alter that. In *Ridge Racer* this was entirely forgivable. It was a faithful arcade-conversion delivered in a six-month development window with unfamiliar technology.

There are no such excuses this time. *Revolution* is just a jazzed-up *Ridge Racer 2* and not a particularly jazzy one at that. The inclusion of the original *Ridge Racer* track, for those lucky enough to play *Revolution* in two-player mode, is inadequate compensation. The link-up itself disappoints because the tracks are so complex your opponent is often out of view.

Despite its technical edge over most PlayStation games, *Ridge Racer Revolution* fails to live up to the expectations evoked by both the impact its father made on the gaming scene and the development time given to the project. As the flagship game in Japan this Christmas it may secure the indulgence of *Ridge Racer* fanatics but it is unlikely to win many converts to the Playstation. It certainly rates badly against *Wipeout* (although, admittedly, this is a slightly different sort of game) but more importantly it is comparisons with Sega's imperfect but impressive *Sega Rally* that are likely to be the most unflattering. When it comes to the crunch, a driving game nut with a few quid to blow is unlikely to be swayed by talk of the PlayStation's superior 3D capabilities. He's going to plump for the most attractive, best designed game that features more than one new track. That game is not *Ridge Racer Revolution.*

Edge rating: **Seven** out of **ten**

Continued



Link-up

By connecting two PlayStation's together, *Ridge Racer Revolution* can be played with a friend, rather than computer-controlled opponents. The link-up enables two players to race against each other, either alone or with the field of computer-controlled cars also in play, and fortunately does not affect the game's frame rate.

The three *Revolution* tracks are built in to the link-up option, but the snaking nature of the new track will probably force players to return to the original *Ridge Racer* course, which is also included for link-up users.



By selecting outside view, the use of the rear-view mirror is lost. This caribbean beach is typical of *Revolution*'s scenery but much of the game is now clichéd cityscape and fails to impress

Sega Rally





Sega Rally offers some intense high speed skirmishes – whether hurtling through a claustrophobic forest pass (left) or along a wide, grass verged freeway (right) a little healthy competition adds much to the excitement. However, the three-lap arcade mode can be a lonely experience

Format:	Saturn
Publisher:	Sega
Developer:	AM3
Price:	£TBA
Release:	mid-January





The in-game physics are impressive. When corners are taken sharply, the car banks onto two wheels (above)

It is getting more and more difficult to judge racing games. All the traditional superlatives have been used up and turned into clichés. Everything that can be said about frame rates, power slides and artificially intelligent opponents has already been said. Worse still – many believe the genre peaked with *Daytona* and *Ridge Racer*. For a while, judging by the likes of *Indycar 2* and *Hang 'On GP '95*, it looked like the cynics were right. How lucky then that *Sega Rally* – a fresh new take on the arcade driving game – should come along to blow all the lethargy out of this overcrowded game style.

On the face of it, *Sega Rally* offers nothing extraordinarily new. The front end has the usual selection of game modes – championship, practice, time trial. It also proffers the usual selection of vehicles and gear transmission options (automatic and, 'only a fool would try it!', manual).

In fact, it's only when the game itself begins that the differences between this and Namco's sequel *Ridge Racer Revolution* become clear. For a start, *Sega Rally*, as the title would suggest (although you can take nothing for granted these days – God knows what *Road Rash* suggests) moves out of that stereotypical urban sprawl, where circuits snake through skyscrapers and beneath overpasses. Instead, the four courses on offer here take in a menagerie of rough country terrains including treacherous mountain passes and muddy forest tracks (the desert level is rather strange though – green fields, mud, grazing cows – have Sega never seen a desert?). In short, *Sega Rally* introduces a whole new, refreshingly grungey, look.

This isn't just a cosmetic change, as it so easily could have been. These tracks really are



Although the 3D is not perfect, objects in the distance are still visible very early with minimal block in – even when viewed through a tunnel







On dirtier tracks, cars can be lost in clouds of mud and dust. That doesn't put spectators off (above). Or helicopters for that matter (middle)





The two player split-screen option is perhaps *Sega Rally*'s finest feature. Although the graphics suffer slightly by being squashed to fit, the game itself doesn't. Excellent stuff

rough and demand a totally different style of driving from the smooth tarmac of the city racers. Each circuit is riddled with bumps, ramps and potholes which send the player's car soaring into the air and then grinding into the mud on the other side. In outside view, this abuse is even more evident. When the track is fairly level, dirt and grit spray off the wheels at every turn and the whole car bobs up and down on the suspension with realistic ferocity.

Just as the track looks like it pushes the cars to physical extremes, *Sega Rally* actually feels like a physically demanding game to play. Often you find yourself fighting with the controls to get the car to stay on the track since it handles in such a determinedly bouncy way. This is by no means a bad thing. On the contrary, this is a victory in simulating momentum. The player can almost feel the forces acting on the car as it takes a sharp corner at 100 mph. This near-perfect simulation indicates the amount of car handling data included on the CD. Few driving games can boast the wealth of characteristics present in the *Sega Rally* vehicles. The interaction between player, car and circuit is a constant, frantic skirmish, but it feels realistic and is incredible fun.

A serious criticism though: in arcade mode, *Sega Rally* can be a lonely experience, especially when a three lap race is chosen (races occur over either one or three laps per course). While driving, the player will usually only meet one opponent at a time and cars are so far apart that long stretches of the track will go by before another racer is even spotted. Consequently, *Sega Rally* often feels like a race against the clock rather than a race against intelligent competitors. Ironically, **Edge** often complains that cars are too bunched up in racing games, but *SR* goes too far in the other direction.

It turns out that the best opponent is not the computer, but a friend, via the excellent two player option. Of course the split screen suffers from the usual graphical problems associated with squashing two game screens onto one TV, but the excitement and worryingly savage rivalry that results more than makes up for any visual disappointments. The two player mode is great fun, especially when the 'slower car boost' option is active, ensuring the players usually battle along within micro-seconds of each other.

Sega Rally is a victory on a number of levels. Even though it runs at half the coin-op's frame rate, this conversion seems to capture the whole energy, look and feeling of the arcade original. Furthermore, put this side by side with the Saturn *Daytona* conversion and it's hard to believe they are running on the same machine. More important than *Sega Rally*'s credibility as a conversion, though, is the fact that it is a challenging and enormously playable game in its own right. *Virtua Fighter 2* and now this? Happy new year, Saturn owners.

Edge rating: **Eight** out of **ten**







The bonus track, Lakeside, features glorious autumnal scenery. Here it is being tackled in the special car, the rear-wheel drive Lancia Stratos

In The Hunt







The amount of on-screen action occurring during *In The Hunt* is astounding – water flares from the waves and explosions bubble to the surface. Unfortunately it's all too much, leaving the player gasping for air

Format:	PlayStation
Publisher:	Xing
Developer:	In-house
Price:	¥5800 (£40)
Release:	Out now (Jap)







In The Hunt was Irem's last horizontal blaster before they went under. The gameplay shows why

Students of scrolling horizontal shooters will harken back misty-eyed to Irem's seminal contribution, *R-Type*, which not only boasted perfect gameplay but pretty much forged the durable power-up/end of level boss template featured in a million inferior modern offerings. Including, sad to say, most of Irem's subsequent arcade titles, which may explain the company's recent closure of its coin-op division. *In The Hunt* was one of their last and it's easy to see why. Not so easy to see why, is how it has made it onto the PlayStation.

The thankless task in this water-logged gumboot of a game is to pilot a submarine through six blessedly short levels in the hope of saving the world (if not the programmers' jobs). Combating the ceaseless wave of poorly-animated enemy craft is achieved with three feeble and predictable weapons (torpedoes, depth charges, sea-to-air missiles); combating the inevitable guardians is achieved, as usual, by exhausting the abundant continues. At its best the gameplay is crude and sluggish, at its worst non-existent. Just hold the firebutton and hope one of the maelstrom of explosions that continually fill the screen is not you. Even on the normal difficulty setting the odds are in favour of any self-respecting chimpanzee to see off the first few levels without a struggle.



In The Hunt has a six-strong cast of guardians. Here, a crabby Poseidon is given a cameo role

Graphically, the game is perversely reminiscent of several hoary old 16bitters. The enemy aircraft are clearly copped from *UN Squadron* and the submarine designs owe an obvious debt to *Empire of Steel*. There are some tasteful enough backdrops rendered in subdued aquatic hues and although one would like to marvel at the sheer number of sprites being shunted around they're often so crippled by slowdown it's like playing a screenshot.

As Rare have proved with *Diddy Kong*, there's still room for formulaic games provided they are delivered with sufficient style and commitment to the fundamentals. With the power afforded by the new technology, gamers are unlikely to tolerate third-rate fossils like *In The Hunt* for much longer.

Edge rating: **Four** out of **ten**

The Dig

Format: PC CD-ROM
Publisher: LucasArts
Developer: In-house
Price: £44.99
Release: Out now



As usual for a LucasArts adventure, the landscapes and interiors look wonderful. The designers have made excellent use of shadow and perspective to create some genuinely atmospheric set pieces







An underground control room (top). Characters travel around Cocytus' subterranean tunnels using a futuristic tram system (middle)

LucasArts adventures hold a unique position in the videogames industry. Usually arcade-style games lead to fervent anticipation, but the latest LucasArts' product is guaranteed to generate a similar, if not ecstatic, level of excitement as the release date approaches.

Enter *The Dig*, LucasArts' latest point and click. It's a space adventure conceived by Steven Spielberg in which three astronauts are stranded on an alien planet after saving Earth from destruction by a massive meteor. The player's job is to discover the secrets of the planet and ultimately find a way home.

In terms of game construction, *The Dig* is vintage LucasArts. Short, snappy pre-rendered cut-aways punctuate lengthy play sequences full of locations to explore, objects to pick up and, most importantly, an array of maddening puzzles to solve. There are some real stand out scenes in *The Dig*: the meteor orbiting a cobalt blue Earth, the shadowy wreckage of an alien space ship on Cocytus (the alien planet) and the morphing hieroglyphic displays in the library being notable examples.

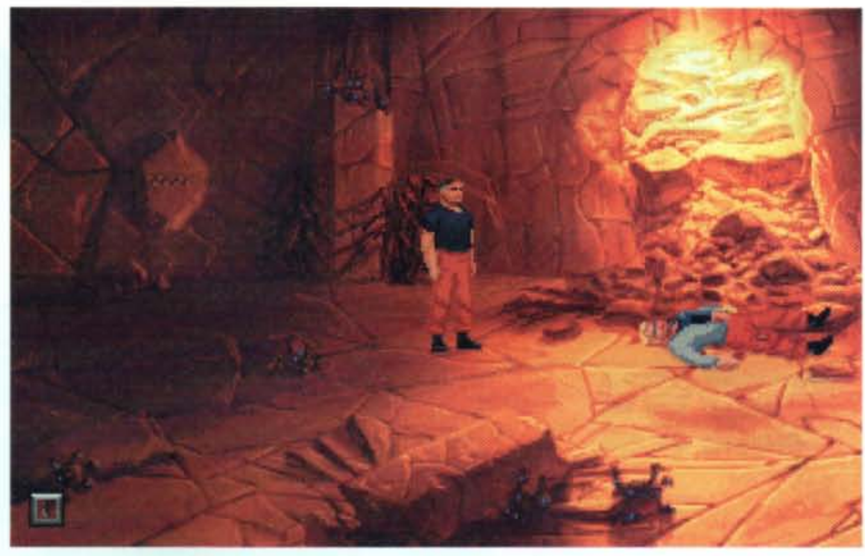
Character animation is also predictably impressive. Boston, Ludger and Maggie, the three main characters, are well designed, disparate in appearance, and exhibit an array of idiosyncratic gestures and movements. Importantly, they interact with each other in an antagonistic way, meaning pre-rendered sequences are jocular, often suspenseful interludes rather than showy diversions.

These elements all combine to provide an incredibly immersive environment, accentuated by the atmospheric orchestral soundtrack. Each revelation and puzzle solved provokes a fascination with the seemingly absent alien race, prompting a desperation to know whether they are hostile or benign.

But something is missing. Despite the gorgeous scenery and enigmatic setting, *The Dig* is simply not as engrossing as its forefathers. It's all down to the lack of that eccentric LucasArts humour which made *Secret of Monkey Island I* and *II*, *Full Throttle* and *Day of the Tentacle* such definitive purchases. In those titles you could never tell what loony joke would be around the corner and this kept the player exploring, even when hopelessly stuck. *The Dig* does have the occasional wry comment and subtle quip, but the scenario, although interesting in parts, is just so... ordinary. And yes an epic space adventure can be ordinary – the concept of







Who says there is no death in LucasArts adventures? Low pays his last respects to Brink before running off to solve some more fiendish puzzles (main). By programming this robot (top left), the power to the alien complex can be activated (above left), opening further doors to the labyrinth

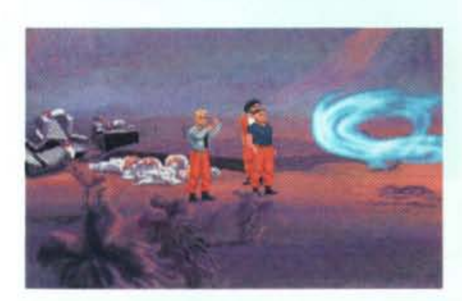
men finding themselves trapped on an alien planet is hardly original (*Stargate*, *Lost In Space*, *Planet of the Apes* etc). It is ironic that the main boasting point of the game, Steven Spielberg's concept, should be its least appealing feature. In taking inspiration from Hollywood sci-fi rather than off-beat cartoons, LucasArts have compromised their flare for waywardness. *Monkey Island* gave the impression that anything could happen and when it did, it would be a riot. *The Dig* rarely manages this element of surprise.

Another problem is the less than inspiring main character. Boston Low lacks the irascible charm of Guybrush Threepwood (*Monkey Island*) or the brutish charisma of Ben (*Full Throttle*). He is more like an empty vessel, a human shaped cursor arrow with little personality. Which repeats the game's main problem: it is cinema, not cartoon based. The old adventures provided the player with larger than life characters with vivid personalities who were a joy to intermediate with.

Lastly, the lack of non-player characters is another definite downside. Earlier LA titles were full of weird and wacky personalities who added a richness to the game environment that is missing here. For much of *The Dig* there are only two people to talk to.

In *The Dig*'s favour, it is less of a transitory experience than the last two LucasArts adventures. Whereas *Full Throttle* tended toward making a visual impression, *The Dig* relegates pre-rendered sequences into a secondary position behind some some difficult puzzles (the critter jigsaw being a prime example). It's pretty easy to reach Cocytus, but when there, it is possible to wander around for hours before a puzzle's solution becomes apparent. Typically for a LucasArts adventure, the answers, when discovered, have been around all along.

Judged against previous LA titles, *The Dig* is a slight disappointment. The PC market is brimming with 'epic space adventures' all promising a cinematic journey into the unknown, but delivering the same old sci-fi tosh. What the PC needs is LucasArts' wit. *The Dig* is still way ahead other companies' efforts, and players looking for a stimulating long term challenge will be impressed. But where's the humour? Bring back LeChuck, bring back Dr Fred, leave the one dimensional astronauts to Tom Hanks.





The characters are helped through some early puzzles by a ghostly apparition which appears at key points in the game. But is it friendly?

Edge rating: **Eight** out of **ten**











The main character, the team, the communicator, the inventory. All you need for an epic adventure

Indy Car Racing 2

Format:	PC
Publisher:	VIE
Developer:	Papyrus
Price:	£34.99
Release:	Out now





To cope with corners this tight (above), the player often has to drop down to under 50mph. The car in front is not making things easier – it's almost impossible to pass







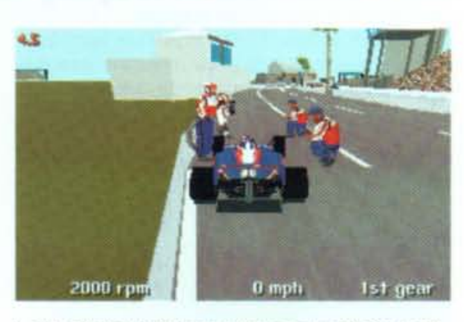
The crashes are marvellously dramatic, and send debris scorching across the track (above)

Just when it looked as though the sim-style racing game had been smothered by an influx of flashy arcade titles, Virgin have re-entered the fray with this sequel to their 1993 *Indy Car Racing*.

Realism is the key selling point of the game. It is visible in the vast selection of pre-championship season options including trial runs, garage maintenance and the chance to play the game in arcade mode. It is even more visible in the range and depth of in-game information. Using the function keys, the player can monitor the heat of his tyres, pit status, the amount of petrol in the tank, etc. This data is by no means superfluous: if a sim-style race is chosen, the information is vital simply in order to finish, let alone win.

For players who are not looking for a realistic simulation and just want to drive around a track at ridiculous speeds, *Indy Car 2* would be a mistake. Even when most simulation features are switched off, the car still handles like a sim car – it's difficult to control and after a spin it can take a frustrating minute to get back into the race.

Overtaking is also difficult, because many of the tracks are so thin – often you can't risk making a move because touching the car in front will have you spinning into the barriers. On the up side, the steering (improving on the first *Indy Car*) has a real weight to it, providing a sense of momentum not found in arcade-style racers.



The pit-stop is by no means a cosmetic feature: whatever happens here will shape the race

This is undoubtedly one of the most realistic racing games on the market, but that does not necessarily make it a better game than its competitors. Sim lovers will take to it, but, as a racing game that's entering the same market as visceral thrill givers *Sega Rally* and *Ridge Racer Revolution*, it may just be far too clever for its own good.

Edge rating: **Five** out of **ten**

Virtua Cop

Format:	Saturn
Publisher:	Sega
Developer:	AM2
Price:	£60 with gun
Release:	Out now







Many of the enemy gun men look like extras from a Quentin Tarantino film. Considering the violent nature of *Virtua Cop*, this can only be seen as a stylish bonus. Let's go to work...







Baddies react in a totally histrionic and entertaining way when they are shot. They also react differently, depending on where they are hit. Never has violence been so diverse

The genre to which *Virtua Cop* belongs is hardly the most sophisticated in terms of design. The game camera, over which the player has no control, scrolls around a variety of scenes in which baddies and innocent bystanders run around begging to be shot at. And that's basically it.

Of course, if the right words are used, most game types can be broken down into a couple of sentences, but *Virtua Cop* seems to wear its simplicity on its sleeve. The three level scenarios (eg underground arms factory and gun-runners HQ) suggest immediately that all the ideas on offer here come from Lethal Weapon, not Citizen Kane. Point the gun at the screen and shoot – the only thing the player has to worry about is accidentally taking out a dock worker or secretary and instantly forfeitting a life. Apart from that, it's one long, cramp-inducing blast.

Despite this simplicity, *Virtua Cop* is an undeniably compelling title. From the moment the game starts to the moment it ends, the screen is awash with bullets, explosions and, most importantly, enemy characters and innocent upstanding citizens. The latter two are in constant supply, appearing from behind crates, jumping off lorries, rolling out from beneath vehicles and generally making the player's role as confusing as possible.

This is a game that is constantly trying to find new ways to force error from the player. Seven baddies will jump out from behind a crate, only to be followed by a civilian. Civilians will run out in the midst of gun fights and then infuriatingly run around obscuring the criminals shooting at you. Patterns of enemy behaviour are often established, tricking the player into habitually firing into certain sections of the screen at certain intervals, only for the pattern to be changed and a civilian to pop up in place of a gun toting terrorist. It's nerve-wracking stuff, although once this order has been learned the game has little more to offer in terms of surprises.

The graphical style of *Virtua Cop* is befitting to the Virtua series and can rarely be faulted. Glitch-free polygons and crisp texture maps combine to create a pleasingly sharp cartoon environment – the whole thing looks smart and stylish, especially the Tarantino-esque



A flashing warning signal and a repeated vocal reminder make it very difficult for the player not to notice when he has run out of bullets







By using pre-calculated geometry, *Virtua Cop* enables the Saturn to produce super-smooth, wonderfully texture-mapped 3D scenery, that adapts perfectly to the panning camera angles. Unfortunately, this linear approach rather limits the gameplay to scenes that, once learned, are easy

villains in their black suits and wrap around sunglasses. There are loads of visual extras employed to make the game a touch more interesting to look at. On the second level, cranes topple and collapse in puffs of smoke, and, better still, the virtua cop climbs to the brow of a quarry ridge, looks down at a group of criminals huddling beneath and gives the player the chance to pick them off one by one as they run about far below. On the third level – set in a skyscraper (a nod to Die Hard perhaps) – there is a shoot out in a room full of computers. Here the monitors can be riddled with bullets, smashing them to pieces and eventually making them spin on the desk.

Part of the reason *Virtua Cop* succeeds, then, is because the designers know how much peripheral detail adds to the excitement of a game. If a simulated environment is to be realistic, it must be interactive with static objects being destroyable. *V-Cop* also succeeds because the enemies utilise this environment so fully. It is not just a case of them hiding behind objects – enemies will sometimes use those objects as weapons. For example, in level two an enemy character gets in a truck which has previously been used as a hiding place and drives it at the player. To stop the truck, the driver must be shot through the tiny windscreen – it's a frantic moment.

Unfortunately, *Virtua Cop* does not offer much in terms of longevity. With the default number of continues, it is possible to complete the game within a few hours. Even if the player restricts himself to just a few lives, with a little skill (acquired remarkably quickly), the three levels can be mastered in a matter of days. Compare this with the longevity of other mindless blasts like *Doom* and you have a game that could seriously disappoint in the long run. If the baddies adopted random movements rather than pre-ordained patterns, things may have been different.

Even if the game is to be accepted as it stands there could have been additions to the features on offer. The end of level baddies are rather disappointing and not particularly challenging. They should have been placed in rooms full of screaming hostages, or even better, disguised as hostages until the last moment. Ultimately, *Virtua Cop* fails to use that old (but amusing) cliché of 'tyrant with gun to head of weeping hostage backing away from nervous cop with gun to head of tyrant' which is a shame.

Clearly though, what *V-Cop* lacks in brain cells, it makes up for in unadulterated, unsophisticated compulsion. Through its use of stereotypical movie set-pieces (the skyscraper, the warehouse, the abandoned quarry) and enemy types, this game becomes, in every respect, an interactive Stallone film. *Virtua Cop* is sheer violent mayhem which engages the mind on no other level than the need to distinguish legitimate targets. In other words, it's great fun.



Each end of level boss gives a little speech before he gets blown away. No Oscars will be bestowed upon the actors responsible, however

Edge rating: **Seven** out of **ten**







Special effects: the crane collapses (top), cans explode (middle) and a lorry bursts through crates (above)

PO'ed

Format:	3DO
Publisher:	Studio 3DO
Developer:	Any Channel
Price:	£44.99
Release:	Out now







***PO'ed* has a mass of weapons to collect and use, all selected using a simple process (top left). The default weapon is the frying pan (main), which splats enemies with a healthy clang. However, the pan can only be used in close combat. Better to find the meat cleaver (above left), which can be thrown**

It is hard now to imagine a world before *Doom*. It is hard because *Doom* revolutionised the shoot 'em up in so many ways, but it is harder still because *Doom* is continually being resold to us. True it may be under a variety of different guises, from a plethora of different companies, but it's often the same old game. The typical PR claim, 'hey, this isn't just another *Doom* clone' turns out, time and time again, to be achingly hollow.

The story-line to *PO'ed* – a cross between Under Siege and Red Dwarf – is different enough. The player takes on the role of a cook whose space ship is attacked by aliens that proceed to kill the rest of the crew. The damaged ship is hauled back to the alien planet where the game begins. The player must then find a way of getting back to earth before his goose is well and truly cooked.

Regardless of the promisingly obscure scenario, *PO'ed* is not a game that makes a good first impression. At a glance it's just a standard *Doom* 3D blaster which slavishly follows the basic rules set down by its forefather. It also initially fails to impress in terms of graphics: texture-mapped objects glitch horribly up close, certain floors and walls are entirely 2D, making them look totally insubstantial, and the animation of the enemy creatures is also rather jerky.

But despite the derivative style and some disappointing graphical elements, *PO'ed* triumphs in the most important area: gameplay. It offers the same kind of visceral rush as *Doom* (especially when plenty of enemy creatures are around to waste), but it's also a game with an incredible amount of depth. This is mainly down to the quality of the puzzles which fill each location, hampering the player's progress and making him think and experiment, rather then just blast at passing baddies.

Most of these puzzles aren't in the standard *Doom*-esque 'pull a switch then try to work out what it did' style – there are many other objects, not only switches and pulleys, that have to be utilised if each level is to be completed. Furthermore, numerous puzzles only reveal their true nature after considerable exploration, trial and error. For example, the exit to level two is blocked by a force field

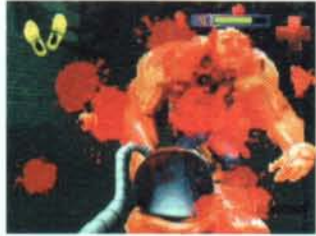




The most visually impressive weapon is the rocket launcher. The player can visually direct the rocket

Weapons







***PO'ed* has an interesting selection of weapons to collect and use. From top left, clockwise: the meat cleaver is good for close encounters, the laser gun (two shots) is more accurate, but rather weedy, the drill is incredibly messy and therefore great fun, the pulse gun is the best weapon available, the Wailer is a rapid fire weapon, excellent for air combat and the flame thrower (two shots) sprays carnage over a wide area**

which can only be de-powered by stepping on footpads which set up cancelling force fields. The player will notice neither the floor pads, nor the counter force fields, if he has not spent time examining the location.

In effect, the levels seem to have been designed in such a way as to slowly reveal what needs to be done, which adds considerable mileage to the standard 3D shoot 'em up-style game play.

On the subject of gradual revelations, it is only when players get into the game that they will realise the graphics are much more effective than they first appear. For a start, there's no distance clipping – however big a location is, and no matter how far an object is in the distance, the player can still see it. In short, everything is visible, yet the game runs at an impressive speed. Furthermore, there are little graphical touches that are noticeable in play; realistic lighting effects and reflections on floors being two examples. Also, by strapping on a jet pack the player is free to explore any part of the playing area, exploiting a 3D world that enables far more investigation than *Doom*'s structured, essentially flat landscape.



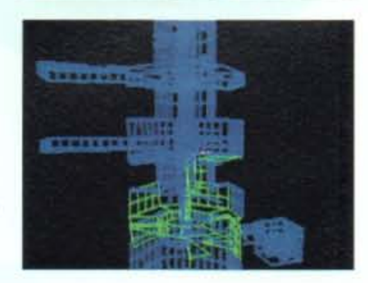
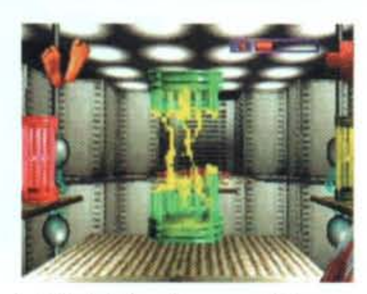
***PO'ed* features some revolting alien creatures. The bottom on legs (left) farts missiles. Killing this red thing (right) is very satisfying**

PO'ed also includes a refreshing strain of off-beat humour which adds a lot to the *Doom* scenario. The player's default weapon is a battered frying pan that he swipes at enemies, and which makes a satisfying clang whenever it hits them. Later weapons include a meat cleaver, pneumatic drill, and a brilliantly named 'meat seeker' missile launcher.

There's also a surreal range of enemies, including one that looks disturbingly like a bottom on legs. Even more surreal is the fact that, when monsters take a couple of blows from the trusty frying pan, they're reduced to a quivering pile of bloody flesh – an effective ad for being careful in the kitchen if ever there was one.

Of course the big question is, does the world need another echo of the *Doom* gameplay? Clearly, *PO'ed* has a lot to offer – it is refreshing to see the designers have bothered to inject a little humour into the proceedings and the game has an intelligence to match its wit. There are also loads of levels to explore – longevity being something that is often overlooked when assessing a game of this sort. Yes, *PO'ed* is yet another *Doom* clone and consequently many may find it disappointingly imitative, but it adds so much to that overcrowded genre that it deserves to be considered a very good game in its own right.

Edge rating: **Seven** out of **ten**

***PO'ed*'s thin walls cause glitches (top). The wireframe map (middle) helps when seeking the exit (above)**

Firestorm: Thunderhawk 2

Format:	PlayStation/ Saturn
Publisher:	Core Design
Developer:	In-house
Price:	£44.99
Release:	Out now







Amidst persistent enemy gunfire, Thunderhawk flies in to defend a passenger cruiser against evil Iraqi gun boats (main). The pre-mission map (inset left) helps in planning such attacks

When designers set out to create a flight shoot 'em up, one of the most difficult elements must be finding the right compromise between arcade action and sim authenticity. *Thunderhawk 2* is one of those rare titles that gets the balance just right.

It is not an easy game to get into, though. The control method is hideously difficult to learn and remains resolutely unintuitive for days due to the sheer range of buttons that need to be employed simply in order to alter the height and direction of the craft. Left and right on the joypad merely bank the copter in those directions – the left and right shoulder buttons are needed to turn it, and two fire buttons increase and decrease altitude.

In a sense though this is not really a problem. For a start the joypad controls can be re-configured so the player can experiment with more comfortable set-ups. Secondly, the complex nature of the controls lends a more simmy feel to the game, making it more realistic than many other flight shoot 'em ups. Luckily, the fun of blowing things up with missiles is not compromised. In fact, it's enhanced, because there is a real sense of achievement when the player actually starts hitting targets. Games like *Wing Arms* and *Ace Combat* have, perhaps, made things a little too easy, reducing the longevity of the game.

The weapons system is another element that takes time to master. The guided missiles are by no means an easy option – locking on to a target requires a steady flight pattern and, if the target is moving, an ability to hold that pattern for the crucial seconds it takes for the system to function. Mission-specific weapons such as bombs have to be used with incredible precision in often chaotic environments. This all adds up to a game with considerably more depth and a markedly longer learning curve than most other titles of this genre. Luckily, the default machine guns



The main gun has locked in on an enemy helicopter (main), but the confrontation is far from over. As the player fights to keep the helicopter in sight, it's firing back all the time

are actually reasonably powerful, meaning missions do not always require the special weapons to complete them.

The realism of the thunderhawk, seen in both its handling and its weapon systems, is complimented by a number of impressive game play features. First up is the sheer variety of available missions. There are eight campaigns in all, each divided into three or four sections. Flight sims do usually offer this many assignments, but their actual content is often disappointingly samey. *Thunderhawk 2*, on the other hand, offers the straightforward 'destroy the ground object' scenario, but also plenty of bombing recces, base defences and convoy escorts as well. Especially entertaining are the Middle Eastern missions and the battle against the South American drug cartel.

Because of this mission diversity, the player will have to build an equally diverse range of tactics. *Thunderhawk* is by no means an indiscriminate shoot everything and go game. The limited armour integrity usually only enables the player to identify and destroy the primary targets, taking out a few troublesome tanks and helicopters on the way – there often just isn't time or ammunition to destroy everything. This adds much to the suspense and atmosphere of each scenario.

The game engine is not perfect, however. Higher aspects of the landscape and tall buildings are blocked in incredibly late which can be confusing (especially If the mission involves protecting allied buildings – unless flying right over them it looks like they've all been destroyed). To compensate, there is no slow down, even in the thick of action, and the actual landscapes are all well drawn.

Explosions are very blocky close up, but look magnificent from a distance – helicopters burst open and spray debris over acres of terrain, buildings collapse in on themselves and tanks send molten metal shards shooting into the sky. The sound effects that accompany the fireworks are also atmospheric and surprisingly realistic.

One last grievance is the poor standard of in-game navigation equipment, which forces

Views







There are three basic game views (from left to right): external, internal with no cockpit display and internal with cockpit display. Edge found the centre view to be most playable

the player to rely on the large map that appears in pause mode. Unfortunately, when pause is activated the sounds stop, cutting into the game and destroying the atmosphere.

Nevertheless, this is basically a lesson in how to make a playable, believable 3D shoot 'em up and make it properly. The nimble graphic engine, some marvellous missions and a range of devastating weapons all merge seamlessly to create a seminal title. It's also a lesson in how to employ sound and other peripheral effects to both accentuate the action and give the whole thing an uplifting cinematic feel. Designers of second rate flight sims be warned: your efforts will no longer be tolerated. Blame this game.

Edge rating: **Eight** out of **ten**

X-Men Children of the Atom

Format:	Saturn
Publisher:	Capcom
Developer:	In-house
Price:	¥5800 (£40)
Release:	Out now (Jap)





Playing *X-Men* is like playing the comic book series, only without the shrouded moral tales and stories of human turmoil. In other words it's 100% action, pure and simple







When Mojo World's floors collapse, play must continue in new scenery

For a long time *Street Fighter 2* was not just the best beat 'em up available, it was the only one worth considering. Everything about the game worked – the crisp, gaudy colours, the flamboyant characters, the extravagant special moves. But then polygons arrived and with them an obsession for realism. You wouldn't catch Jackie Bryant employing a fireball, or Akira electrocuting someone with his bare hands. Has the beat 'em up lost something in this transition? Having played *X-Men*, just possibly.

Based loosely on the Marvel characters, *X-Men* is basically *Street Fighter* for the nineties. The game has the same visual style, vibrant colour schemes and exaggerated fighting set-pieces as *SF*. The contestants, too, are very similar to those in Capcom's classic series. Omega Red, for example, uses extending Mr Tickle-style limbs, very reminiscent of Dhalsim, whereas Colossus employs mostly wrestling moves and lumbers ape-like across the screen in a manner reminiscent of Blanka.

There are other parallels to be drawn between *X-Men* and *Street Fighter*. The former includes a mutant energy gauge for each X person which works in a similar way to the power gauge in *Super SF2*. When special





The Sentinal's spectacular rocket punch is more than Storm can handle (top). Like *Tekken*'s King, Omega Red twists and hurls Spiral (above)





Iceman is the easiest character for non-*Street Fighter* fans to get to grips with. His giant snowball and icebeam moves (left) are simple to pull off and provide him with valuable energy for his power gauge. Wolverine (right) is more of a tactile combatant, benefiting from quick, darting attacks

moves are performed, the gauge rises so that further, more powerful moves can be accessed. Many of these specials are truly incredible and go a long way to accentuate the epic cartoon style of the game. Cyclops fires an incredible surge of red laser energy through his one eye and Iceman can bombard the opposition with frozen shards of ice. All these highly explosive moves would look marvellous splashed over the pages of a Marvel book, and this is perhaps the point. Gone are the controlled pyrotechnics of the *SF* range – *X-Men* washes the screen with huge, noisy detonations, laser blasts and swirling energy clouds, all of which can, if used in combo, knock out a player in just a few seconds of play.

Away from the *Street Fighter* juxtapositions, *X-Men* is a fine game in its own right, fully capturing the powers and characters of the comic heroes. Iceman, for example, is known for his arrogance and this is caught in the game – on winning he creates an ice carving of himself and puts his arm proudly around its shoulder. X-Men purists may berate the absence of Gambit, but there is so much you can do with a character who throws magical playing cards at people.

The interactive and interesting backgrounds add a lot to the game's visual style, and also to the fights themselves (in Mojo World battles occur on flimsy bridges which often collapse, sending the players hurtling downwards). There is also a great variety of special moves including tech moves and, best of all, super finishes which are supercharged versions of basic specials.

Sacrificed, though, is the beautiful, fluid animation associated with the 3D beat 'em ups. These are 2D sprites and are much larger than life – especially Sentinel who dwarfs the others and must be the world's largest beat 'em up sprite. In fact, in terms of on-screen action *X-Men* is easily the most impressive example yet of the Saturn's 2D abilities. Beautiful parallax backgrounds scroll in a multitude of directions and even morph into one another, while the game's gigantic sprites trundle across the background scenery for no other reason than to show they can.

Ultimately, *X-Men* adheres very strongly to *SF2* protocol and lacks some of the variety and intuition of the new breed of 3D fighting games – bouts are often little more than an exchange of projectiles, rather than physical, skillful conflicts. However, this game fulfils a different role – it is an interactive comic book, that creates a bright, brash invigorating beat 'em up. Reality is overrated anyway. ∎

Edge rating: **Eight** out of **ten**





***X-Men*'s super jump allows fighters to leap three screens upwards, enabling excellent mid-air scraps and cleverly extending the battlefield**







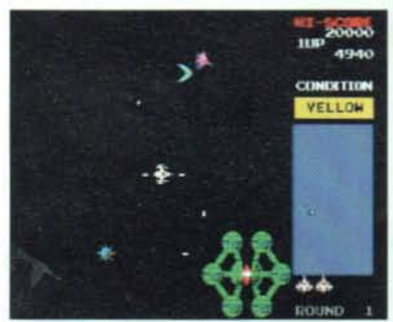


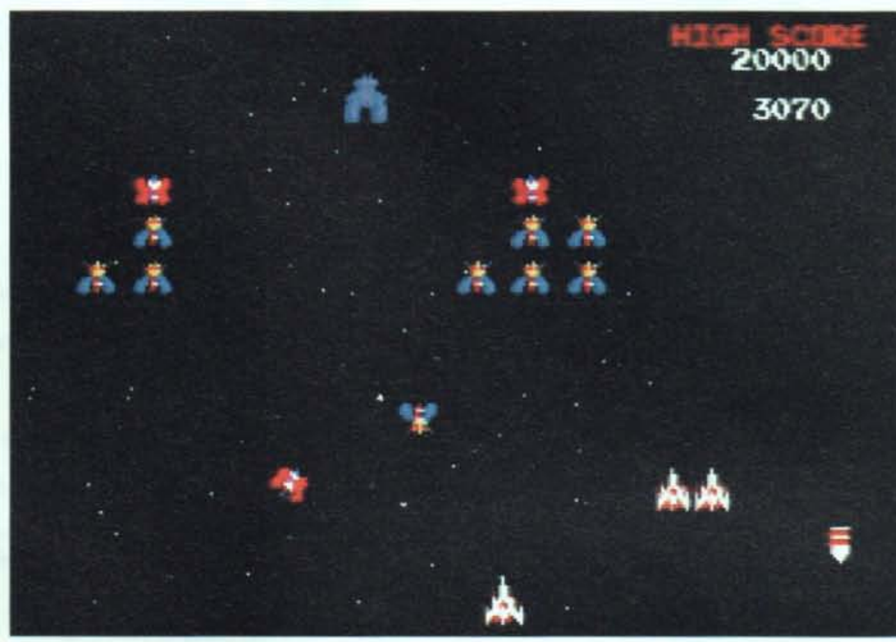
Capitalising on the Saturn's sprite chip, *X-Men*'s features massive explosions and bursts of laser fire

Namco Museum

Volume 1







Each game has its own museum room (*Galaga*, top left). *Bosconian* (above left) is a fairly weak shoot 'em up that will have little lasting appeal for today's gamers. *Galaga* (main), however, is an incredibly tough and addictive blaster, with no cosmetic thrills but plenty of challenging gameplay

Format: PlayStation
Publisher: Namco
Developer: In-house
Price: ¥5800 (£40)
Release: Out now (Japan)
First half 96 (UK)



Pole Position is probably the least playable of the seven games. Compared to modern racers it is dire

Prepare to be humbled. *Namco Museum Vol 1* collects together seven original Namco coin-ops dating from 1980 to 1986, although only one is from later than 1982. Most are household names (that being a relative term), with only the 1986 *Toypop* perhaps a little unfamiliar to veteran gamers. All the titles, however, share a characteristic common to most arcade games of the era – they're brutally, astonishingly, hard. Coin-op technology was still very limited in the early 80s, and coin-op games were correspondingly simple. While this was good news for players, who didn't have to spend three-quarters of an hour reading the instructions before the game made any sense at all, it was bad news for arcade operators, who faced the prospect of players learning and mastering the simple, repetitive skills of the games to such a degree they could play all day on a single ten pence credit. The only way to ensure a profitable turnover of customers was to make the games so forbiddingly difficult that most people would find themselves wiped out in no more than two or three minutes.



The CD includes a virtual museum to explore and read the history of each individual game, see the original advertisements, play the music, etc







After wandering around the realtime 3D *Pac-Man* chamber in the museum (top right), players can try the world's most famous maze game. Because the original was displayed on a tall monitor, the PlayStation version has an attractive surround. The game itself is an identical replica of the coin-op

While this was a common approach in those days, a variety of factors (the rise to dominance of home consoles over coin-ops, the increased complexity of play afforded by new technology, and the petulance of American gamesplayers who wouldn't buy or play a game they couldn't get halfway through on their first go) have conspired to make today's games, by and large, far easier. Returning to the old days, therefore, can come as a nasty sucker punch to the soft, overfed underbelly of today's gamer.

Interestingly, this compilation includes both *Rally X* and its almost immediate sequel, *New Rally X*, a game which came about because the original, which was Namco's big hope for 1980, proved so hard even by the standards of the day that players quickly gave up on it. The sequel employed a couple of new features, softened up some particularly evil sections, and added a jauntier tune in an attempt to ease players into the game more gently. But it was too late and *Rally X* flopped, lost to history, seemingly forever. It's great to see it back, though – the *New* version is one of the best games of the age, balanced almost perfectly between challenge and temptation, and undoubtedly the best game here.

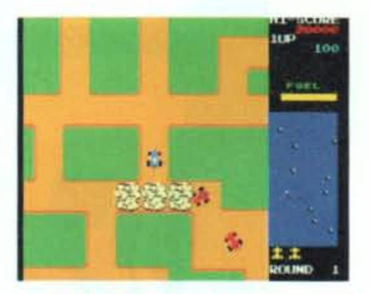
Galaga is a single-screen shoot 'em up, featuring arguably the arcade world's first ever power-up (the ability to dock two of your ships together, doubling your firepower). It's also hugely hard – a moment's lapse in concentration can now cost you two lives at once. It's still extremely playable, though, which can't really be said about *Bosconian*. The tiny number of gameplay elements means that to be challenging the game simply has to cram the screen with enemies and obstacles and it quickly just gets silly. A similar problem affects *Toypop*, but for the opposite reason – you have to continually pick up different weapons to kill different enemies, and by the fifth level or so, it's all so complicated and frantic that the cheerful carnival music which previously seemed so endearing may push you over the edge and into a sociopathic rage.

Pole Position is almost impossible. Although the joypad control system replicates the analogue steering wheel of the coin-op as skillfully as could have been hoped for, the game's margin for error (both in terms of crashing into things and of beating the time limit) is so minuscule that just two mistakes will see game over before lap three. In a whole weekend of trying, **Edge** didn't make the fourth lap once – highly addictive for connoisseurs who can't believe they were ever this bad at it, but newcomers will recoil in sheer terror.

And if anyone hasn't heard of *Pac-Man*, they've probably bought the wrong magazine.

You may be able to complete *Sonic 3* in four-and-a-half minutes. You might be blasé about your capacity for 37-hit combos in *Killer Instinct*. Perhaps you can even win an 80-lap endurance race in *Daytona USA* using the horse. It doesn't matter. You're still about to have your face ground into the dust by a scarred and battle-hardened gang of games that are, in all possibility, older than you are. Brace yourself. It's going to hurt.

Edge rating: **Seven** out of **ten**





***Rally X* (top) is a *Pac-Man* derivative with racing cars. *Toypop* (above) involves a manic chase around a toy box collecting goodies**

Namco's second collectors' item provides six more classic titles offering the same prescription of cute tunes and unyielding gameplay

Namco Museum Vol. 2









***Cutie-Q* (left) takes a twist on the *Breakout* formula, with multi-levelled paddles and power-ups. *Grobda* (centre) is a tank game boasting 99 levels**



***Mappy* (top right) is a traditional platformer – run around and collect the goodies. *Gaplus* (above) has more superbly frantic *Galaga*-style gameplay**

***Xevious* is the most celebrated of Namco's volume 2 collection, thanks to its 8bit prominence**

Format:	PlayStation
Publisher:	Namco
Developer:	In-house
Price:	¥5800 (£40)
Players:	One or two
Released:	February (Jap)

The six games in Namco's second museum installment are interesting in that three titles have never before been converted to a home console. This alone should offer something new to ardent retrogame enthusiasts.

First up is *Dragon Buster*, an action RPG dating from 1985 where the hero has to rescue his girlfriend using swords and magic. The game is reminiscent of Sega's *Wonderboy In Monsterland and* Nintendo's *Zelda II*, with maps, baddies and level bosses.

Cutie-Q is a cross between *Breakout* and *Pinball*. By moving stacked paddles the player has to destroy the bricks, avoid the pinball-related traps and collect the bonuses that appear.



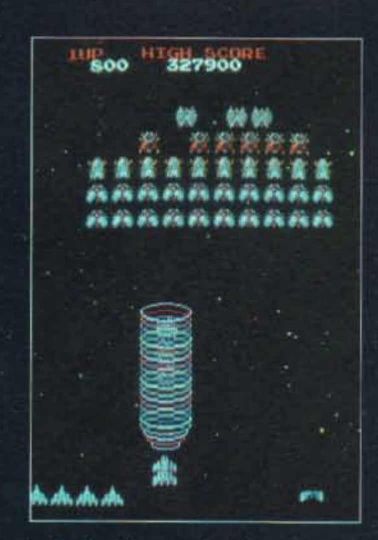
In *Dragon Buster* the player has to roam around destroying dragons in true 8bit action RPG style

The third in the *Galaxian* series, *Gaplus*' novel feature is the ability to build up a wider arsenal of fire by capturing enemies with your own beam weapon.

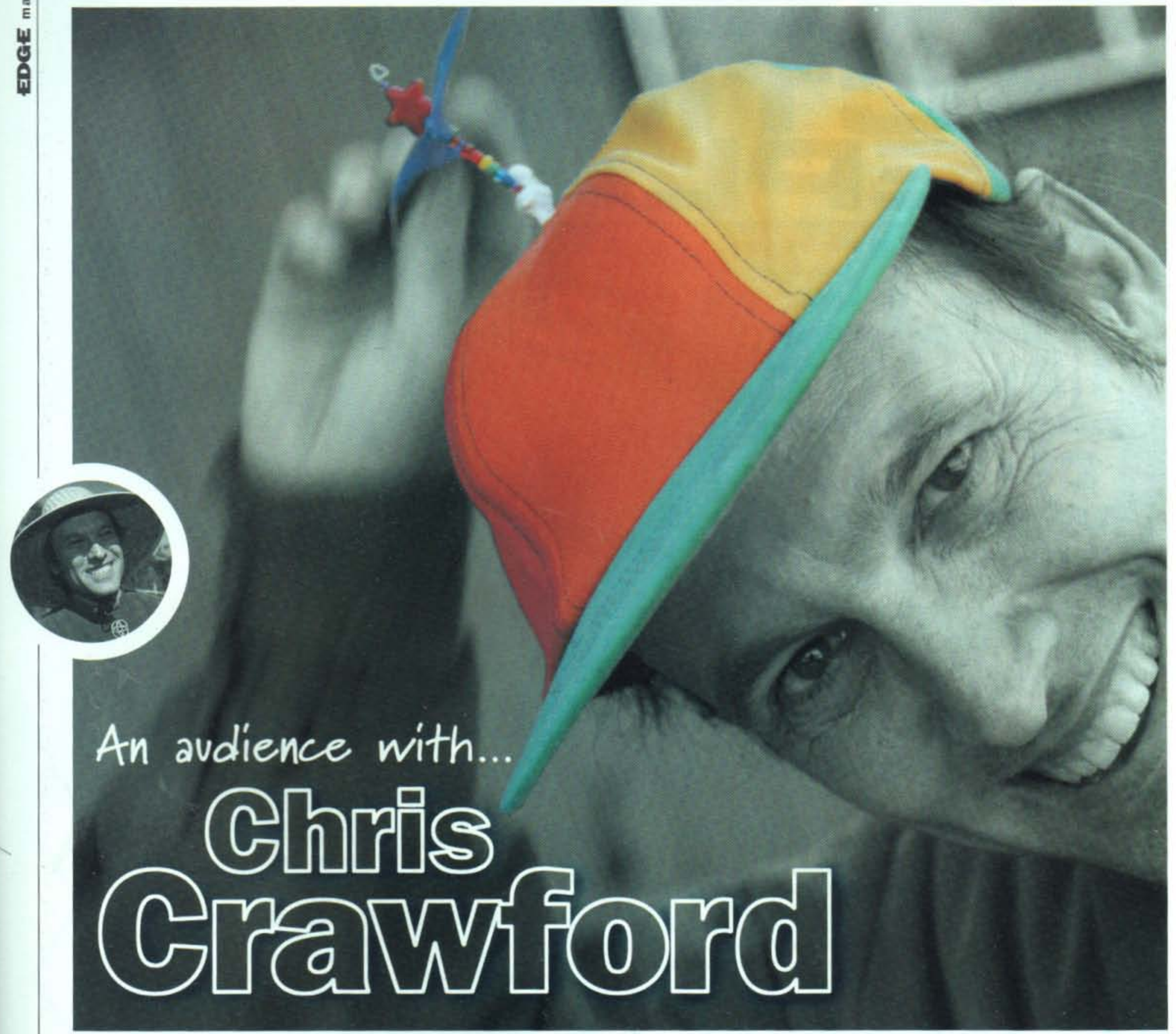
Similar to Atari's VCS game *Combat*, is *Grobda*, an overhead tank game with 99 levels. In this the player has to single-handedly destroy enemy tanks by gathering them into the centre of the screen and bombing them.

Less inspiring, although a big hit in Japan when it was released, is *Mappy*, a simple platform game in which the title character has to retrieve stolen goods which have been dropped all over the screen.

Xevious is probably the most famous game appearing on this second CD. The PlayStation version is, of course, arcade-perfect, although as with volume 1's *Galaga*, the superb 'arranged' version from Namco's new *Classic Collection* coin-op is missing. Expect an 'arranged classics' collection, then...



***Gaplus* allows captured enemy fighters to be added to the player's arsenal (arcade version shown)**



An audience with... Chris Crawford

Do you rate *Virtua Fighter 2* highly? Do you think *Wipeout* is the pinnacle of gameplay? Chris Crawford, creator of mould-breaking strategy title, *Balance Of Power*, doesn't, he dismisses them merely as 'airy foam.' So what's the alternative? What is the real future of interactive entertainment? **Edge** talked with computer gaming's self-proclaimed 'Profit in the Desert' to find out...



Chris Crawford thinks more about computer and videogaming than anyone else **Edge** has ever met. As the founder of the highly successful Computer Game Developers' Conference, an active game programmer since 1974, director of development at Atari in the early eighties, and the editor of US mag, Interactive Entertainment Design, he is widely respected as one of the brightest minds in the business.

But he is also controversial. He is a maverick, a has-been, a genius, an idealist, or the saviour of gaming, depending on whom you talk to. Everybody has an opinion. Working alone, in exile from the mainstream gaming community, he is forging a new frontier of gaming.

Edge What is your perception of the games industry in 1995?

Chris I think the key word is maturing. We're definitely out of the Wild West stage of the early eighties. Maturing means good things and bad things. The good things are that a lot of the business relationships are more stable with not as many rip-offs going on.

On the other hand, we're a bigger business. The lone wolf is dead. The good old days when a kid with a bright idea would put a game together at home, those days are gone forever.

Edge Does that sadden you?

Chris Well, yes and no. It's kind of like the aging of an individual. I'm older, when I was 20 years old I was wilder and crazier. Nowadays I'm slower, I'm more responsible. But on the other hand I don't make as many stupid mistakes.

Edge Having said that, every now and then a killer new game arrives from out of nowhere.

Chris You see them, but they are rarer and rarer occurrences. The biggest one that we have had in the past few years is *Doom*, and *Doom* was put together by a bunch of nobodies out in Texas who just were out of touch. There is no way *Doom* would have been done by one of the mainstream companies.

But *Doom* couldn't happen today. Id Software would not be able to compete against the big boys in today's market place.

Edge So is maturity a good thing?

Chris Yes, but unfortunately I still think we are handling the maturing process poorly.

'An executive from a very large, very successful company said to me, 'Chris, I could sell dog shit in the right box.' I looked at him and said, 'You do.''

One of the big mistakes I see the industry making is that there is a complete lack of any long-term strategy. The industry is very much, 'We will sell tomorrow what sold well yesterday.' The fact is, audiences change and audiences evolve in several ways. One of the simplest rules of audience evolution is if you abuse your audience they won't come back. And our industry abuses its audiences frequently. We foist junk on people and they don't come back. There are lots of people out there who put stuff out on the shelves, they throw some money at it and they say, this is good enough and it will probably sell. And people do buy it – once.

There is one story I love to tell, it's of an executive from a very large, very successful company who, ten years ago, expressed this philosophy perfectly. He said, 'Chris, I could sell dog shit in the right box.' I looked at him and said, 'You do.'

Edge So why don't games improve?

Chris The game industry needs to recognise that there is such a thing as R&D. Silicon Valley knows this very well but the entertainment industry just doesn't get it. That is, you set aside a proportion of your profit every year for research. You've got a group of people who just go off and do research and look at wild and crazy things. Most of what they do is a complete waste of time but every now and then they come up with something great. This industry has zero research budget.

Edge Do you think gaming has a lack of ambition?

Chris The foolish mistake is a failure to realise that although these kids are spending money now, by holding on to them when their buying power starts going up, you can really cash in. But once they turn 18, it's like 'get lost, we don't want you anymore.'

It's idiocy. There's a huge marketplace out there for people who were raised on Atari who are perfectly comfortable playing games on a computer, but they aren't playing games because there is nothing to appeal to their tastes. It is a lost business opportunity worth billions of dollars.

Edge You really believe there is nothing there for the mainstream?

Chris There's nothing there for adults' taste in general. The industry fools itself

Continued next page

and says, we've got 1.5 million people in their 20s playing games. And they say look how many consumers that is! But what percentage of the total market is that?

Yes, we've got all the nerds. But who gives a damn about the nerd dollar! We could be getting normal people. There are millions and millions of normal everyday people who are not interested in nerd games. But all we sell are nerd games. So what we have to do is de-nerdify our products. The problem is that nerd games are a lot easier to do.

Edge What about the R&D effort of people getting to grips with exploiting CD-ROM technology?

Chris It is important to recognise that CD is a data technology not a processing technology. And interaction goes through processing not through data. In other words, CDs can do nothing directly to improve the quality of our interactions. They can only make games look prettier.

I don't know, it's my feeling that just about the time we figure CD out it will be made obsolete by high-speed network stuff.

Edge But graphics have to play a significant role. How about if, as a game creator, you wanted a player to sexually desire a character in the game? Surely a digitised image of Cindy Crawford will work better than a bunch of text?

Chris Sure, if we're talking about adolescent males, you're going to get a lot further with a pin-up than with a lot of personality. And most adolescent girls will tell you they are a lot more popular if they stuff some tissue paper in their bras. And they resent that about boys. So the question is, are we going to go around stuffing tissue paper in the bras of our games? I for one am not going to do that.

Edge So what is a game? How do you define it?

Chris I see the game as an interaction that involves challenge. Actually I don't want to use that as my formal definition. But that's a quick and dirty rule of thumb.

There is always some sort of challenge to the player. The problem with today's games is that either the challenge is weak or the interaction is weak. A good example is *Myst* where there is a strong challenge but a weak interaction. Challenge normally arrives from conflict, all games have conflict, just as every story has, too.

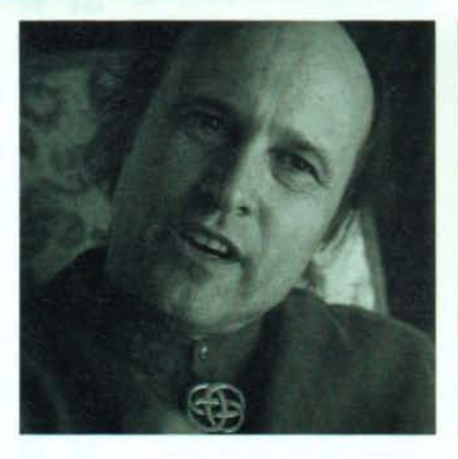
Edge Is that why violence is so big in videogames?

Chris My observation is that there's nothing intrinsically wrong with violence, but it gets boring. Violence is kind of like crude language – you can pepper your conversation with obscenities. If done rarely, it's spice, over done it's just boring.

Violence is to movies and games as sugar is to foods. It's very pleasurable and very intense but jeez, I can't eat sugar all day long.

Edge No, but it would seem that 13 to 16 year olds can.

Chris Yes. Thirteen to 16 year olds can eat candy, too. A lot more than I can eat. In fact there's a very close connection here. I once did an essay called 'The Evolution of Taste,' where I pointed out that in a whole bunch of media, when you're young you gravitate toward the intensely pleasurable form of it. It's short, very intense, very pleasurable, but then your taste always evolves toward a more subtle, more lasting experience.



Food – kids love candy. When they become teenagers they go for hot-dogs, hamburgers, and pizza, so forth. Only when you age can you appreciate a well-baked piece of bread. You appreciate the subtleties. Or start appreciating fine French cuisine... But when we go to computer games, there's nothing like any of those.

Edge So exactly where does the game industry come into this analogy?

Chris This industry sells burgers.

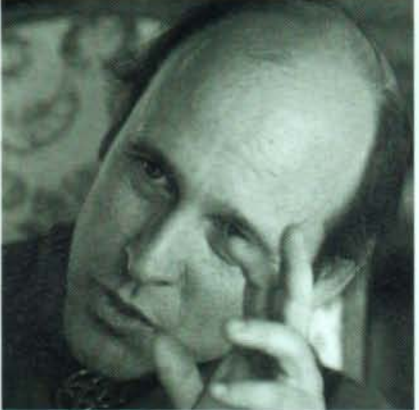
Edge And you're arguing that we will never ever get to French cuisine?

Chris Right. The whole system closes into itself because customers start to say, 'well you know, videogames are for kids, not adults.' So they don't even consider buying them. Even if French cuisine became enormously profitable and everybody was eating croissants and so forth, McDonalds still couldn't do it because even if they made the best French food in the world, people would say, 'Yuk, McDonalds,' and they'd never go in to try it.

Edge You've made some pretty harsh criticisms of the people running the game industry. What do you think these people think of your work?

Chris They'll say, 'Chris is a dreamer. He doesn't have to answer to shareholders.' And they'll mutter to themselves about the unrealism of all of this. They'll also admit to themselves that there are elements of truth to what I'm saying.

My role in this industry has been the prophet in the desert. The only reason I'm tolerated is because I've been right too damn often.



Edge How could the 32bit technology of 1995's gaming systems be used to improve gameplay and not just game graphics?

Chris There's no question that you could build products of enormously greater richness than we now have. We're putting all of this energy into the cosmetic factors. But at some point we've got to stop squeezing this particular sponge – because it's going dry on us – and turn to the sponges we haven't even looked at. And those are the input side and the interaction side. The algorithms used for interaction in games right now are ridiculously primitive. A high school student could design smarter algorithms. Graphics algorithms are brilliant, but the actual interaction algorithms are really stupid. Very small investments in interaction algorithm design,

I'm sure, can yield gigantic leaps in gameplay value.

It is the same problem with inputs – the inputs available to a player are really stupid, in terms of the language of expression.

Edge By inputs, do you mean the way the player communicates with the game?

Chris Yes: up, down, right, left, or fire. And then there are jump, duck, or a few others. A very simple question a very good designer can ask is: what does a player get to do? Don't tell me what he hears, don't tell me what he sees – those are passive things. Those are what happen to him.

Tell me what he does! What are the verbs available to him? And the best expression of these verbs are things he inputs. So let's translate a game like *Doom*. What are the verbs in *Doom*? Turn right, turn left, go forward, go backward, change weapons, and fire. That's the entire vocabulary in *Doom*. Six words. That's not a very rich language, is it? What *Doom* says to the player is enormous, all these images, sounds, and animation – but what does the player get to say back? Very little.

When I contrast the thousands of verbs in real interpersonal interaction with the half dozen verbs in a typical videogame, I look at that difference and I say, therein lies our greatest failure.

But then that raises all sorts of other issues. Even if you did provide the player with all these verbs, how is he going to play it? What should the game designer do? Give the player a book to learn the language before they can play your game?

Edge How are you, with your own work, driving to improve the complexity of gaming?

Chris About four years ago I realised that the thing we were really missing was the element of people. I had identified that as the critical problem while at Atari but I had no idea how to solve it.

Edge When you say games are missing people, do you mean they're missing personalities, characters?

Chris I mean that you don't interact in any meaningful or interpersonal way with any character in any computer game. The two most common ways humans think are in spatial logic and verbal logic. Computer games are 99% spatial logic. Most everything you do is go north, go south, pick up this, shoot that. It's always moving, moving, moving – fine for some people. Mostly adolescent males. But that's not the whole world of human thought.

We have to de-nerdify our products. The problem is, nerd games are a lot easier to do

Edge Do you think that could be the crux of why games so far have been a male pastime?

Chris That's a major issue. The spatial factor is basically a huge sign on the front house door saying 'NO GIRLS ALLOWED'. Spatial reasoning chases women away. It's not that they can't do it, they just don't like it. Why would they want to be entertained with something that's not entertaining?

Edge So you are suggesting a fundamental shift from the way games have traditionally been made? That's a huge undertaking.



Chris It's a little realisation so fraught with implications that one thing leads to another, which leads to another and another and... and that's where four years went.

For example, if you are ever going to produce a realistic behavioural model of artificial behaviour, then you need to consider context. And that implies that you have to keep detailed records of everything that happens. Every single event that takes place in the game must be stored, so if a guy approaches a girl for the fourth time and says, 'Hey, will you go out to the movies with me?' she can consult her history book and realise that he's already asked her out three times. Previously she's replied with, 'No thank you, I'm washing my hair Saturday night,' but now she can say on the fourth time, 'Get lost, creep!'

But she can't do that unless she is aware of the history of their relationship which means that you have to store all of those events in a way that is useful, meaningful, and also suitably compact. The number of events you can get goes way up into the thousands, and it also has to be easily searchable.

Edge We understand that you've spent a lot of time trying to create a computer program that models gossip. If you can get this right, then it bodes well for being able to recreate other 'human' behaviour, right?

Chris Yes. The essential question is under what circumstances will somebody gossip to somebody else about an event? Well, it depends on a lot of factors. It depends on how much I like you. It also depends on how important the event is to me. And I'm also going to tell you about things that affect you. So I programmed all these algorithms to determine when a character would tell another character about an event. Then I tested them.

The example I'm running is with the characters from King Arthur's legend. Let's take for an example the day when Lancelot seduces Guinevere. He's overjoyed, but is he going to tell somebody? The event is very important to him so he's strongly inclined to tell. He's going to tell somebody he likes, somebody like his best friend. And also he wants to tell it to somebody to whom this news is significant.

Edge Well, that's King Arthur.

Chris Right! And so Lancelot finds his best friend King Arthur and says, 'Guess what, I just made love to Guinevere!'

Edge That's not too realistic...

Chris Right! But why not? Try writing a computer program that would have got it right! That's a very good example of the way these things can blow up on you.

But I'll keep working on it...

Next month...

Edge prints the first in a series of essays written by Chris Crawford, idealising over the future of gaming.

Imagine a time when games are no longer single-player experiences, but involve multi-user activity, either across a network or by implementing true artificial intelligence.

Imagine playing a game where the opponents are not sorcerers or aliens, but are real human beings acting out a specific role. It would be possible to talk to them and receive real, situation-based answers.

Imagine what happens if one of those human players decides to turn off his networked computer. All the possibilities are discussed in next month's **Edge**.

questiontime



Send your **questions** to Q&A, **Edge**, 30 Monmouth Street, Bath, Avon BA1 2BW

Q Having just purchased a UK PlayStation I have a few questions I hope you can answer for me:

1. While playing *Destruction Derby*, on the demo disc supplied with the PlayStation, the walls disappear and sometimes you drive straight through other cars. Also, playing the full game of *Ridge Racer*, the walls sometimes disappear. Is this a fault of programming or can't the machine quite cope with all the information?

2. Is the Euro-AV lead true RGB, or just a composite video signal?

3. Can we look forward to games like *Dune II* or *Command & Conquer*?

R G Bell, London

A **1.** Because the PlayStation has no hardware z-buffering (that is, it cannot determine the depth of the screen accurately, and hence, the realistic collision of polygons), glitching such as this occurs. Disappearing polygons, as seen in both *Ridge Racer* and *Sega Rally*, result from the same hardware deficiency.

2. Sony have recently released an RGB Scart lead, although stocks are rumoured to be low – it's possible you'll have more chance of picking one up at an independent supplier rather than a high street chain. Avoid composite video Scart leads made available by other companies – the PAL machine's composite signal is very poor (especially compared to its surprisingly good RF picture).

3. Westwood have no plans to release *Dune II* on the PlayStation – it's too old. The company has been thinking of a PlayStation conversion of *C&C* for some time though and it's possible that a version will appear through a licensing deal.

Q Just a thought regarding the Ultra 64 and Nintendo's decision to include four ports on the front of the machine. The official blurb is that they are for four players, but could it be that two ports are allocated to each player – one port for the joy-pad and the other for a VR head set?

Simon James, Simon@shulock.demon.co.uk

A There's no feasible reason why an extra joypad port would be needed to plug in a VR headset – if Nintendo had wanted this from the start it would have implemented the necessary circuitry so that a joypad and headset would accommodate a single port. It seems that Nintendo is taking the potential of four-player games seriously and by not relying on a multitap it is effectively encouraging developers to support the four-player option.



Why do *Destruction Derby* and other PlayStation titles have glitchy polygons, asks R G Bell

Q **1.** Is there any hope to see Toaplan classics like *Truxton 2*, *Out Zone* or *Batsugun* on one of the new platforms? Where are the people from this excellent company now, maybe with Taito?

2. You stated that the lowest graphics mode the PlayStation supports is a resolution of 256x224 pixels. As far as I know the standard resolution for 2D arcade games is 320x224, so what will be the resolution for arcade translations like *Darkstalkers* or *Street Fighter Alpha* on the PlayStation ?

3. In comparison to next gen fighting games (*VF2*, *Tekken*), racing games are programmed with a lower refresh rate (30 fps). This may have its reasons, but when will programmers make efforts to produce racing games of the same speed as fighting games? I cannot imagine that current racing games make full use of the Saturn's and PlayStation's capabilities.

4. Can you tell me which currently available machines for private usage support hardware sprite handling ? I own a PC, but sprite programming is quite uncomfortable on it and I am unaware of any graphic card that delivers hardware sprites.

Velimir Tatalovic, Velimir.Tatalovic@GERMANY.honeywell.com

A **1.** Toaplan were superb designers of vertical shoot 'em ups and sadly went bust over a year ago. Most of their designers went to form Tamsoft, the designers of *Toshinden*. None of the games you mention are planned for release (which is a great shame) although it's possible that Ving (who converted Toaplan's *Flying Shark* and *Ultimate Tiger* to the FM Towns Marty) will consider releasing such games on the Saturn and PlayStation.

2. Almost all PlayStation games will be designed to run in 256x224 mode and that includes the games you mention. Don't expect to see a huge drop in quality – coin-op monitors are huge, remember, and therefore need a crisper display.

3. It's far harder to convert a racing game such as *Sega Rally* than a fighting game like *Virtua Fighter 2*. Whereas backgrounds in a beat 'em up can be simulated in 2D, racing games rely on huge numbers of polygons and are more technically demanding. The Saturn's 2D scaling hardware was well suited to the conversion of *Virtua Fighter 2* and it would be extremely difficult to get a complex racing game such as *Sega Rally* running in one frame.



Are two of the joypad ports on the N64 actually for a VR headset, wonders Simon James

4. Most consoles have hardware sprite support, with the Saturn easily dominating as the current 2D champion. The PlayStation is slightly different as it relies on its Graphics Processing Unit rather than a dedicated sprite chip and as such uses blitter objects rather than hardware sprites. No PC cards have sprite support as they are designed to process geometry instead.

Q You contradicted yourself on the letters page this month by saying that you can't link 2 PlayStations from different countries (ie PAL and NTSC) because they run at different speeds, but then proceeded to say that a British game running on an import machine would run at 50Hz. The former is true because the latter is not. I've got a Japanese machine and a PAL copy of *Wipeout*. It definitely runs at 60Hz because a) it's faster than the same CD playing



Did Toaplan coders write Taito's *Dekirindan*? (see letter from Velimir Tatalov)

on the machine in the shop, b) to display a 60Hz picture on my TV (21" Panasonic) via the RGB pins in the SCART socket you have to switch the TV to AV whereas a 50Hz signal will quite happily pass through on channel EC (as the video does every day) and c) I looked at it on an oscilloscope in the lab. Another quibble is not with you, but with GAME and various other shops advertising 'PlayStation Scart leads' which are nothing more than composite to Scart adaptors. A Scart or Euroconnector socket connects a whole host of potential signals – manufacturers simply wire up the pins they wish to use. RGB is one set of pins, composite video is another. To get the best out of a PlayStation (or any other console with RGB outputs) you need an RGB Lead.

Martin Gutkowski, York

A: You cannot link two machines running at 50 and 60Hz respectively, because games tend to swap information packets on a frame by frame multiple basis and will immediately get out of sync due to differing frame rates. As you suggest, it's possible to link-up two different machines as long as they are running the same version of the software – by using the infamous disc swapover trick. It's thought, however, that this damages the CD drive and all future machines will incorporate a revised Boot ROM (version 2.1) which detects if a disc is swapped over.

It is unlikely that your PAL copy of *Wipeout* runs at 60Hz on your NTSC machine because all PAL software has an instruction to switch the PlayStation's GPU to 50Hz PAL, irrespective of the video-out. The only difference between the NTSC and PAL machine's output hardware are the composite encoders.

Q: Now Nintendo have announced the release of their console in the UK next Spring, I am unsure which to get, the PlayStation or the Nintendo[64]?

1. Is it true that the N64 will cost a mere £200?

2. As the N64 is cartridge-based and the PlayStation is CD-based, will the N64 be at any disadvantage or advantage over the PlayStation (ie a lack of CD-quality sound)?

3. How many times more powerful is the N64 than the PlayStation and what are the polygon counts of both systems?

4. The PlayStation has many quality games such as *Wipeout*, *Tekken*, *Ridge Racer*. Are these games and others likely to be converted to the N64 when it arrives here in the UK?

5. Has the N64 got a lot of reputable third party support like Capcom and Namco?

6. I consider the sound to be a major factor in the atmosphere of a game. Will the N64 have as advanced sound abilities as it does graphics performance?

Michael Grzywacz, Surrey

A: **1.** The Japanese price of ¥25,000 equates to about £160 but the UK machine will more likely be bundled with a game (most likely *Super Mario 64*) for around the £250 mark.

2. Obviously, extensive pre-rendered intros will be out, as will CD-quality soundtracks, because the majority of Ultra 64 cartridge space will be devoted to storing bitmapped graphics and textures.

3. Nintendo have only ever announced a polygon count of 100,000 per second for the Ultra 64 but that takes into account z-buffering, anti-aliasing and mip-mapping – features that the PlayStation doesn't support. However, while an accurate comparison is difficult to make, most developers admit that the Ultra64's polygon count is higher than the PlayStation's, but not substantially so.

4. No. Nintendo wants its own custom range of software that won't appear on other formats for at least a year.

5. Both are known to have plans for U64 development but neither company has revealed anything.

6. Not much is known about the machine's sound hardware – the basic technical specifications handed out at Shoshinkai conspicuously ignored sound. **Edge** understands that 64 channels are available although the number of channels used does hit DSP power and consequently the overall performance of the system.

Q: I own an Amiga 500 1Mb which is now six years old and have been using *Vista Landscape Generator*. However, I would like to upgrade to a PC or Mac.

1. I understand the *Vista* program



***Vista Pro* is available on Mac, PC and Amiga, but which is the best system, asks G Cooper**

is available on the Macintosh but what about the PC?

2. The Macintosh is apparently very user-friendly but the PC is not, which do you recommend?

3. Why are there so few games available on the Mac compared to the PC?

4. User-friendliness and future proof is what I want in a computer and the new Apple PowerPC looks very attractive. Would you agree?

5. Any idea what future Amiga computers may be planned?

G Cooper

A: **1.** The VistaPro is available on the PC, and it's similar, if not identical, to the Mac version. Of course, if you buy the CD version for either machine, you'll find many extra features.

2. Although *Windows '95*, the new Operating System for the PC, has been much lauded for its user-friendliness, it is still way behind the present Mac OS, which essentially did in 1989 what *Windows '95* does now.

3. The Mac is currently going through the same games surge that the PC experienced a few years ago, meaning many new titles are being released on the Mac and PC. Because the Mac has a minimum screen res of 640x480, Mac games are usually graphically superior to their PC counterparts, which normally run in a block 320x200 mode. However, because the display is more detailed, a faster Mac is needed to play the latest games – a PowerMac at least.

4. The new PowerMacs are awesome machines, with processor speeds far in excess of the current batch of Pentium PCs. They can also run *Windows 3.1* under software emulation (although this is obviously not as fast as running the program under an actual PC), and with the modern expansion ports have the ability to upgrade with relative ease. To find out about Macintosh computers, contact your local Apple Centre.

5. Amiga Technologies have just announced a new range of Power Amigas for 1997, incorporating Motorola's PowerPC chip found in modern Macs. Of course, Power Amigas will also have the custom Amiga graphics chips, an Operating System that you are used to and backward-compatibility with your old software. If you have faith in the Amiga surviving until 1997, it may be advisable waiting for the new Amigas!

Q and A

You can depend on Edge to cut through the technobabble and give you straight answers. You can write to us at Q&A, Edge, 30 Monmouth Street, Bath, Avon BA1 2BW. Alternatively, fax us on 01225 338236, or email us at edge@futurenet.co.uk.

Edge regrets that it can't answer questions personally, by phone, post or e-mail.

Over the **edge**

1995 was the year that shaped the future of videogaming. Edge looks back, teary-eyed, at the year's highs and lows...

1995 began with the videogames' industry's traditional post-Christmas beano – Winter CES in Las Vegas. But the show seemed like one long drawn-out hangover. The night before, the Japanese pre-Christmas debuts of the PlayStation and Saturn had spawned the associated parties. The ugly side of such revelry, the unattractive pile of half-empty bottles and cans scattered throughout the streets, were the paltry selection of SNES, 32X and Jag stuff that littered the show. And the women you snogged at the party but whom now, in the cold light of day, are pretending it didn't happen, were Sony and Sega (who strategically kept their 'secret' new machines under wraps in Vegas).





February saw Sony hold the PlayStation Technical Workshop at a hotel in London where there was much corporate tub-thumping but precious little information. Subtitled 'Everything you ever wanted to know about the PlayStation but were afraid to ask', everyone seemed just too afraid to ask if it would be possible to play Japanese CDs on a UK console by poking around with a biro.

Arch rival Sega had problems closer to home. Following the roll-out of its now moribund 32bit Mega Drive upgrade, Sega USA's Tom Kalinske told **Edge**, 'No matter how great Saturn is, or PlayStation is, or Ultra 64 is, we'll outsell them by an enormous amount with 32X.' What he failed to mention was that he was actually talking about the sales in the Wakefield branch of Dixons. How else can it make sense?

March and April trickled by uneventfully as everyone geared up for E3 but **Edge** did uncover the impressive specs for 3DO's M2 and was told by Atari that the Jaguar CD would be launched in April (but wasn't told which April). April 21 saw Escom pick up quite a few old C64s and Amigas at the great Commodore car boot sale, but for $10 million they could have cornered the market in all manner of sub-Antiques Roadshow tat. Spring ECTS came and went with everyone thoroughly preoccupied with E3 and the impending battle of bitching between Sony and Sega...

...which began spectacularly on May 9, when Sega sneaked the Saturn into US shops. Sega's surprise overshadowed E3, the biggest videogames show ever, but the PlayStation and its impressive roster of titles still loomed large over the show. Other E3 highlights – an M2 prototype which looked nothing like the PlayStation (unlike 3DO's other two), Atari displaying a better grip on reality (well, virtual reality) and the PlayStation party, where **Edge**'s ed, in the presence of *the* Michael Jackson, felt like a little boy (unlike Michael, of course).

Sega repeated its US trick and released the Saturn in the UK and Europe on July 8 and Saturn titles leaped into the CD charts, notably the special deluxe widescreen edition of *Daytona*. Sega said that it sold out in every major chain (but they also said it was a 128bit machine with five coprocessors when **Edge** called its American Saturn hotline).

Nintendo unleashed *Yoshi's Island* on an 'unsuspecting public' and Miyamoto-san told **Edge** that he was also working on several other SNES titles (unlike every other software company). July also witnessed Nintendo's first hardware launch in five years, the Virtual Boy. Sales of the console were disappointing (although sales of facial saunas, headache tablets and portable massagers did rise exponentially).

August 8 was 'Crash Your PC Day' as Bill Gates generously gave everyone a copy of The Times to read as consolation for being unable to play any of their games once they'd installed *Windows 95*. Mac owners burst into tears and cried, 'why?'

Autumn ECTS was stuffed with great games and everyone was full of anticipation for the PlayStation's launch. Selling 200,000 over the first weekend in the US and Europe, it sold faster than the Mega Drive, SNES or Game Boy did at launch. 'If you still want a Saturn, your head is in Uranus,' trumpeted Sony whilst Sega continued to run its flash *Daytona* advert on TV.

Mutual bitching was very popular in the run-up to the crucial Christmas market. 'Don't play a dodo, play 3DO,' piped 3DO's latest campaign (whoever said Americans have no sense of irony?) as Nintendo stepped in with some Ultra 64 spoilers of their own. While Nintendo's French division concocted a stylish series of magazine ads based around children's Christmas rhymes, UK division THE went for a more earthy angle. 'You can't buy this' reads the tatty ad's message in the kind of font normally reserved for Flame Grilled Whoppers (which you can buy). At least it impressed those attending the Japanese N64 show, in particular a jocular posse of gameheads that befriended **Edge** on the return to Tokyo (above).

As the year drew to a close, all the big names were in the news. Sega and Sony were slugging it out on the software front in Japan, 3DO sold their installed base's dreams down the river to Matsushita for a healthy $100 million while Atari looked even less healthy than usual as their VR project collapsed and The Sunday Times suggested the US firm was about to drop the Jaguar. Which is *still* waiting for decent games.

After 12 months of sensational launches, big surprises and much corporate bad-mouthing, the future is just that little bit closer...

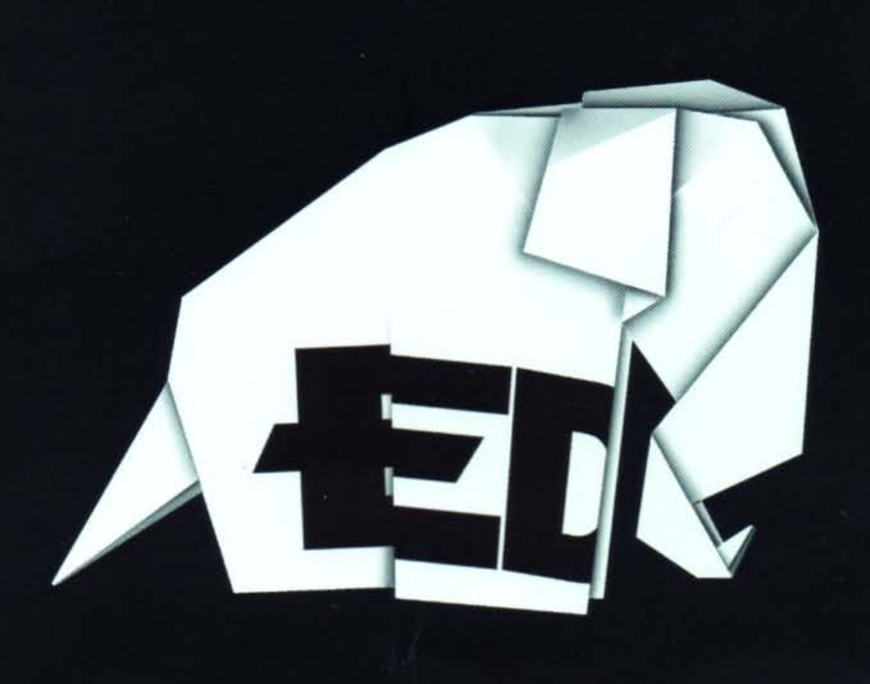
Music that was definitely on the Edge during 95

1. **Leftfield** – Leftism
2. **Tricky** – Maxinquaye
3. **Paul Oakenfold** – Perfection
4. **Coldcut** – Journeys by DJ
5. **Tong, Cox, Sasha & Oakenfold** – Essential Mix
6. **Chemical Brothers** – Exit Planet Dust
7. **Oasis** – Morning Glory
8. **BT** – Ima
9. **Various** – Lonely Planet
10. **Pulp** – Different Class

Edge's games of the year

Best beat 'em up **Tekken (PlayStation)** – *VF2* slipped into 1996, okay?
Best platform game **Yoshi's Island (SNES)** – Miyamoto, Mario, Magnificent
Best sports game **ISS Deluxe (SNES)** – 16bit proves it can hold its own
Best shoot 'em up **Pulstar (Neo Geo CD)** – Yet another R-Type 'tribute'
Best driving game **Sega Rally (Saturn)** – *Ridge Racer* finally loses its grip
Best adventure game **Fade To Black (PC)** – 3D Flashback tour de force
Best strategy game **Command and Conquer (PC)** – *Dune II* but better
Best simulation **Flight Unlimited (PC)** – Realistic (but tedious, obviously)
Best music **Wipeout (PlayStation)** – The game CD outclasses the album
Best design **Wipeout (PlayStation)** – The coolest logos in the world





エッジ



Your guarantee of value